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Secci disc-chlorophyll a self-help program. 1976 sampling results for lakes in the Central Region of the Ministry of the Environment.

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Ministry of the Environment

SECCI DISC-CHLOROPHYLL a SELF HELP PROGRAM

1976 Sampling Results for Lakes in the Central Region of the Ministry of the Environment

1) Allen Lake, Dudley & Harcourt Twps., Provisional County of Haliburton
2) Bass Lake, Oro and Orillia Twps., Simcoe County
3) Beech Lake, Stanhope Twp., Provisional County of Haliburton
4) Belmont Lake, Belmont Twp., Peterborough County
5) Big Barnham Lake, Dudley Twp., Provisional County of Haliburton
6) Big Hawk Lake, Stanhope Twp., Provisional County of Haliburton
7) Big Straggle Lake, Harcourt Twp., Provisional County of Haliburton
8) Billings Lake, Glamorgan Twp., Provisional County of Haliburton
9) Bird Lake, Town of Bracebridge, District Municipality of Muskoka
10) Bob Lake, Anson Twp., Provisional County of Haliburton
11) Canning Lake, Minden & Snowdon Twps., Provisional County of Haliburton
12) Chandos Lake, Chandos Twp., Peterborough County
13) Clear Lake, Town of Bracebridge, District Municipality of Muskoka
14) Clearwater Lake, Town of Gravenhurst, District Municipality of Muskoka
15) Collingwood Harbour, Nottawasaga Twp., Simcoe County
16) Crystal Lake, Galway Twp., Peterborough County
17) Davis Lake, Lutterworth Twp., Provisional County of Haliburton
18) Drag Lake, Dudley & Dysart Twps., Provisional County of Haliburton
19) East Lake, Harcourt Twp., Provisional County of Haliburton
20) Farquhar Lake, Harcourt Twp., Provisional County of Haliburton
21) Four Mile Lake, Somerville Twp., Victoria County
22) George's Lake, Harcourt Twp., Provisional County of Haliburton
23) Go Home Bay, Twp. of Georgian Bay, District Municipality of Muskoka
24) Go Home Lake, Twp. of Georgian Bay, District Municipality of Muskoka
25) Grace Lake, Dudley & Harcourt Twps., Provisional County of Haliburton
26) Gull Lake, Lutterworth Twp., Provisional County of Haliburton
27) Haliburton Lake, Harburn Twp., Provisional County of Haliburton
28) Hall's Lake, Stanhope Twp., Provisional County of Haliburton
29) Harp Lake, Town of Huntsville, District Municipality of Muskoka
30) Head Lake, Lexton & Digby Twps., Victoria County
31) Horseshoe Lake, Minden Twp., Provisional County of Haliburton
32) Jack Lake, Burleigh & Methuen Twps., Peterborough County
33) Kashagawigamog Lake, Dysart & Minden Twps., Provisional County of Haliburton
34) Kawagama Lake, McClintock, Lingstone, Sherborne & Havelock Twps., Provisional County of Haliburton
35) Kennaway Lake, Harcourt Twp., Provisional County of Haliburton
36) Kennisis Lake, Havelock & Guilford Twps., Provisional County of Haliburton
37) Koshlong Lake, Glamorgan Twp., Provisional County of Haliburton
38) Lake Joseph, Twp. of Muskoka Lakes, District Municipality of Muskoka
39) Lake Rosseau, Twp of Muskoka Lakes, District Municipality of Muskoka
40) Lake Vernon, Town of Huntsville, District Municipality of Muskoka
41) Lake Waseosa, Town of Huntsville, District Municipality of Muskoka
42) Leonard Lake, Twp. of Muskoka Lakes, District Municipality of Muskoka
43) Little Kennisis Lake, Havelock Twp., Provisional County of Haliburton
44) Little Straggle Lake, Harcourt Twp., Provisional County of Haliburton
45) Long Lake, Twp. of Muskoka Lakes, District Municipality of Muskoka
46) Long Lake, Monmouth Twp., Provisional County of Haliburton
47) Loon Lake, Town of Gravenhurst, District Municipality of Muskoka
48) Looncall Lake, Burleigh Twp., Peterborough County

49) Maple Lake, Stanhope Twp., Provisional County of Haliburton
50) Mary Lake, Town of Huntsville, District Municipality of Muskoka
51) Methuen Lake, Methuen Twp., Peterborough County
52) Miskwabi Lake, Dudley Twp., Provisional County of Haliburton
53) Muldrew Lake, Town of Gravenhurst, District, Municipality of Muskoka
54) Paudash Lake, Cardiff Twp., Provisional County of Haliburton
55) Penninsula Lake, Twp. of Lake of Bays, District Municipality of Muskoka
56) Ril Lake, Twp. of Lake of Bays, District Municipality of Muskoka
57) Salerno Lake, Snowdon & Glamorgan Twp., Provisional County of Haliburton
58) Schufelt Lake, Twp. of Lake of Bays, District Municipality of Muskoka
59) Six Mile Lake, Twp. of Georgian Bay, District Municipality of Muskoka
60) Soyers Lake, Minden Twp., Provisional County of Haliburton
61) Stormy Lake, Glamorgan Twp., Provisional County of Haliburton
62) Tock Lake, McClintock Twp., Provisional County of Haliburton
63) Trooper Lake, Glamorgan Twp., Provisional County of Haliburton
64) Turtle Lake, Town of Gravenhurst, District Municipality of Muskoka
65) Twelve Mile Lake, Minden Twp., Provisional County of Haliburton
66) Walker's Lake, Twp. of Lake of Bays, District Municipality of Muskoka
67) Wolf Lake, Anstruther Twp., Peterborough County
68) Wood Lake, Anstruther Twp., Peterborough County

Ontario

Ministry of the
Environment

ALLEN LAKE
Dudley & Harcourt Twps.
Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

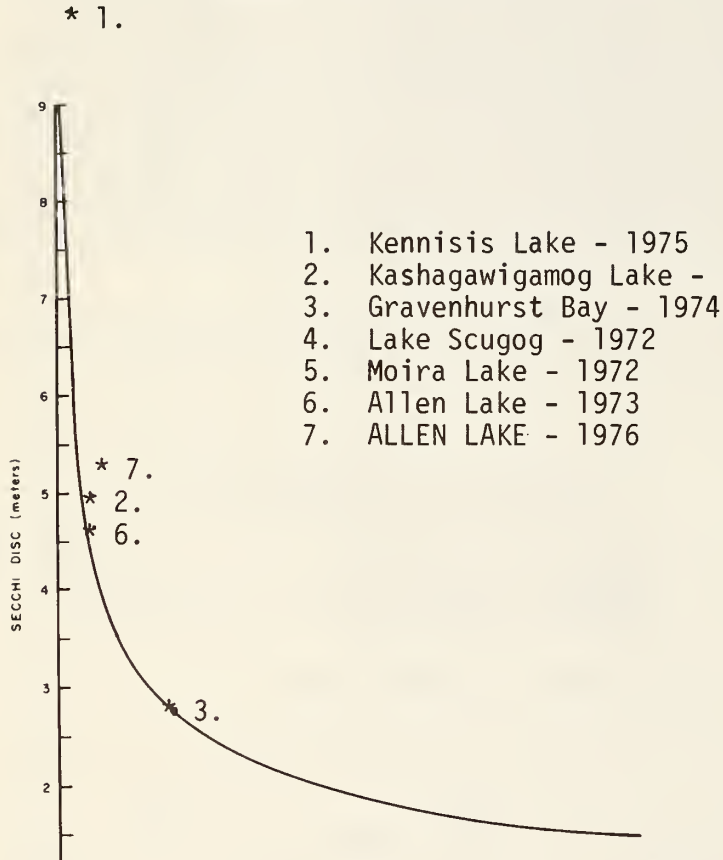
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 4	4.0	2.6						
11	4.5	2.4						
18	5.0	2.4						
25	5.5	1.6						
Aug.22	6.0	1.6						
29	5.5	1.9						
Sept.6	6.5	2.0						
Mean	5.3	1.8						

ased on seasonal averages, Allen Lake would be considered an unenriched lake, characterized
y a high degree of water transparency and low algal densities. Highest algal densities
were recorded in early July and these corresponded to the poorest measurements of water
transparency.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Allen Lake from 1973 to 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	4.7	1.3						
1974	4.9	1.2						
1975	5.6	1.8						
1976	5.3	1.8						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Allen Lake - 1973
7. ALLEN LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Allen Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

len Lake has exhibited only minor variation in the two parameters measured during the ast four years. The variation is within the range of expected natural fluctuation, and ndicates a relatively stable lake from a water clarity and algal density standpoint.

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Ministry of the
Environment

BASS LAKE
Oro and Orillia Twps.,
Simcoe County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

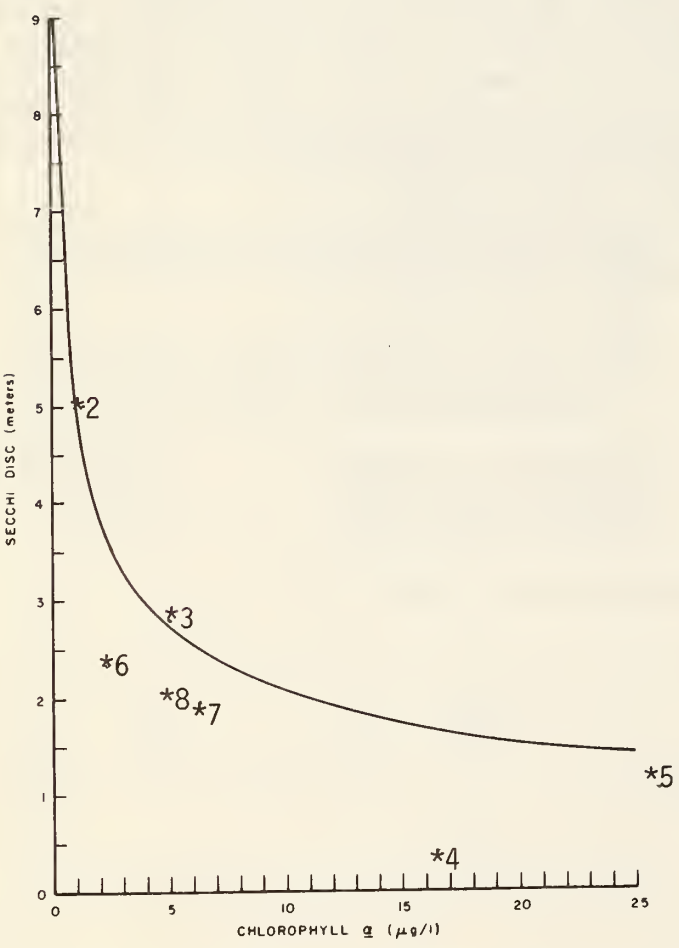
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 2	1.1	4.8						
7	1.2	3.7						
17	1.5	2.9						
22	2.1	3.9						
27	2.1	4.1						
July 8	2.1	3.6						
15	2.0	9.2						
21	2.3	4.6						
28	2.0	4.4						
Aug. 11	2.3	2.3						
16	2.3	6.1						
23	2.1	2.6						
Sept. 2	2.7	7.1						
7	2.1	7.8						
Mean	2.0	4.8						

Except during June, the Secchi-disc readings remained relatively constant during the sampling period, though chlorophyll a concentrations varied considerably. The only definite trend in the chlorophyll a concentrations was the sustained increase in September. This is not an abnormal occurrence in sedimentary lakes such as Bass Lake. The poor water transparency and moderately high algal densities reflect the enriched status of the Lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Bass Lake from 1973 to 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	2.2	2.6						
1974	2.0	2.4	(1.6 m, 6.4 ug/l)*					
1975	1.9	6.5						
1976	2.0	4.8						
"								
"								

* MOE data



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1976
6. Bass Lake - 1973
7. Bass Lake - 1975
8. BASS LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Bass Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the four years of sampling, Secchi disc readings have remained constant, with considerable variation occurring in the chlorophyll a concentration. The lack of variation in the Secchi disc readings is primarily attributable to wind induced turbidity. Continued sampling of the Lake is required to determine if there has been an alteration in water quality, or whether the fluctuations in algal density are in response to climatic variations.

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Ministry of the
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BEECH LAKE
Stanhope Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

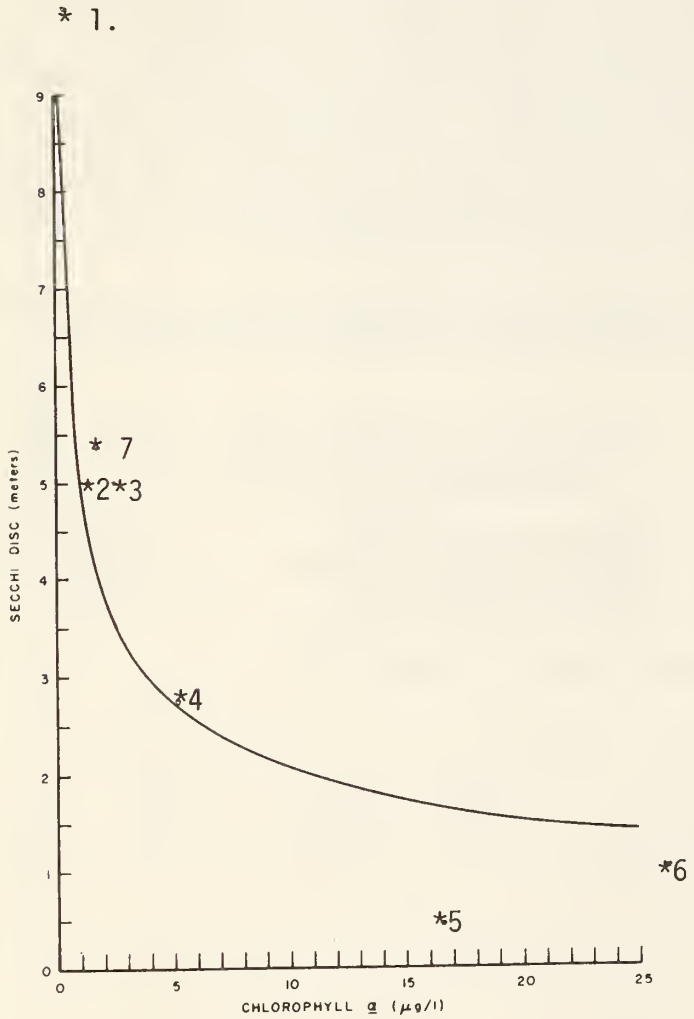
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 29	5.5	1.5						
June 19	6.0	2.0						
July 4	7.3	2.6						
11	3.5	1.3						
Aug. 8	5.0	2.1						
22	4.5	1.6						
Mean	5.3	1.9						

Secchi disc readings varied considerably, with both the highest and lowest reading occurring during July. Chlorophyll a concentrations however remained relatively constant throughout the sampling period. The mean Secchi disc reading and chlorophyll a concentration indicate a high degree of water transparency and low algal densities, respectively. Based on these two parameters, Beech Lake would be considered unenriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Beech Lake

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	5.3	1.9						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Maple Lake - 1976
4. Gravenhurst Bay - 1974
5. Lake Scugog - 1972
6. Moira Lake - 1972
7. BEECH LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Beech Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Beech Lake is positioned in the upper portion of the curve, far removed from the enriched, highly productive bodies of water such as Lake Scugog and Moira Lake. It is recommended that the sampling program be continued on Beech Lake to determine if any trends are developing with regards to water clarity and algal density.

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Ministry of the Environment

BELMONT LAKE
Belmont Twp.,
Peterborough County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

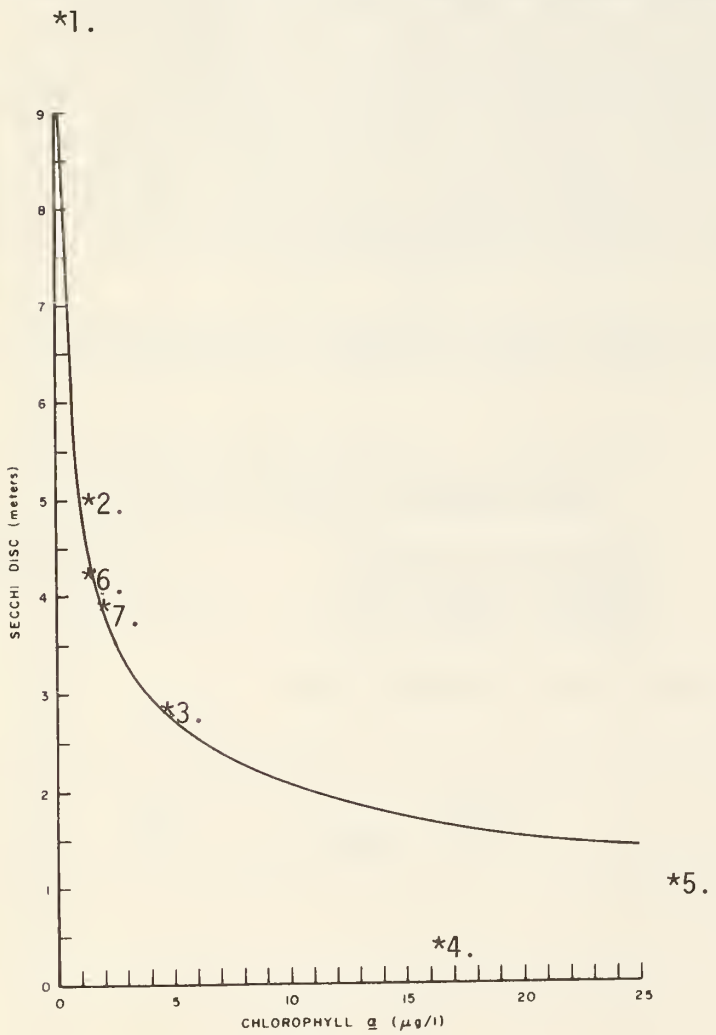
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 17	3.4	1.8						
25	3.8	1.1						
June 1	5.2	1.8						
13	3.7	1.3						
21	3.2	1.3						
28	3.4	1.0						
July 5	4.3	2.1						
19	4.3	1.6						
Aug. 3	4.3	2.2						
10	4.6	1.2						
22	4.1	-						
31	4.0	1.9						
Sept.8	4.4	3.2						
13	4.1	2.0						
21	4.1	3.2						
Mean	4.1	1.8						

There were few fluctuations in Secchi disc readings during the 1975 sampling period; however, a trend toward higher chlorophyll a concentrations was apparent in September. This is not an abnormal occurrence in sedimentary lakes such as Belmont Lake. The mean Secchi disc reading and chlorophyll a concentration indicate a moderate degree of water transparency and low algal densities. Based on these two parameters, Belmont Lake would be considered moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Belmont Lake from 1972 to 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	3.7	1.3						
1973	-	-						
1974	4.3	1.2						
1975	4.0	2.2						
1976	4.1	1.8						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Belmont Lake - 1974
7. BELMONT LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Belmont Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variatons in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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BIG BARNHAM LAKE
Dudley Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

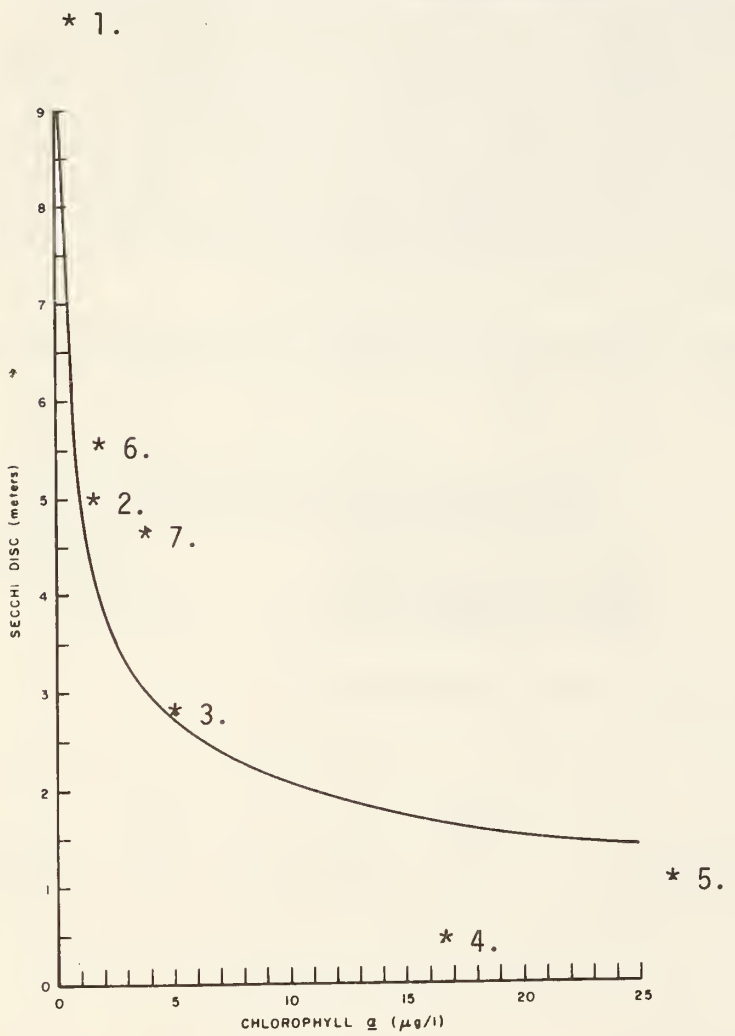
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 11	4.5	5.6						
18	4.5	6.8						
Aug. 1	4.5	3.6						
8	4.5	2.2						
22	5.0	3.1						
29	5.0	3.8						
Sept. 5	4.9	2.9						
Mean	4.7	4.0						

Secchi disc readings remained constant during the sampling period whereas chlorophyll a concentrations varied considerably with the highest values occurring in July. The mean Secchi disc reading and chlorophyll a concentration are indicative of a relatively high degree of water transparency and moderate algal densities respectively. Based on the mean values for these two parameters, Big Barnham Lake would be considered moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Big Barnham Lake from 1975 to 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975	5.5	1.6						
1976	4.7	4.0						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Big Barnham Lake - 1975
7. BIG BARNHAM LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Barnham Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variation in Secchi disc readings and chlorophyll a concentrations over the two years of sampling may be attributable to natural annual fluctuation, or it may represent an alteration of lake quality. Continued participation in the program will be required to define any trends in lake quality.

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Ministry of the
Environment

BIG HAWK LAKE
Stanhope Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

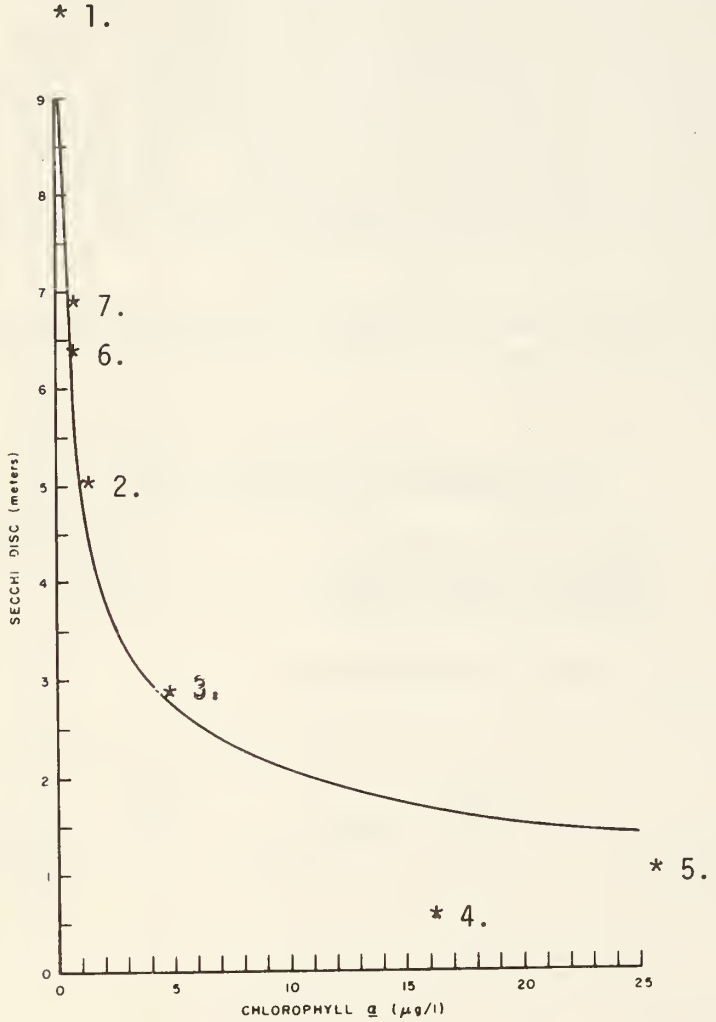
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 6	6.7	0.6						
13	7.3	0.5						
20	7.3	0.6						
27	6.1	0.9						
July 5	6.1	1.1						
11	6.1	1.7						
18	6.6	1.7						
25	7.3	.7						
Aug. 2	5.8	1.3						
22	6.7	1.2						
29	8.4	2.0						
Mean	6.8	1.1						

Neither the Secchi disc readings, nor the chlorophyll a concentrations exhibited any trends during the sampling period. Based on season averages for these two parameters, Big Hawk Lake would be considered unenriched; characterized by a very high degree of water transparency and low algal densities

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Big Hawk Lake from 1972 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	6.3	0.8						
1973	7.2	1.0						
1974	6.9	0.7						
1975	7.0	1.2						
1976	6.8	1.1						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Big Hawk Lake - 1972
7. BIG HAWK LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Hawk Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation. The minimal variation exhibited over the last 5 years indicates a relatively stable lake condition from a water clarity and algal density standpoint.

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Ontario

BIG STRAGGLE LAKE
Harcourt Twp., Provisional
County of Haliburton

Ministry of the
Environment

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

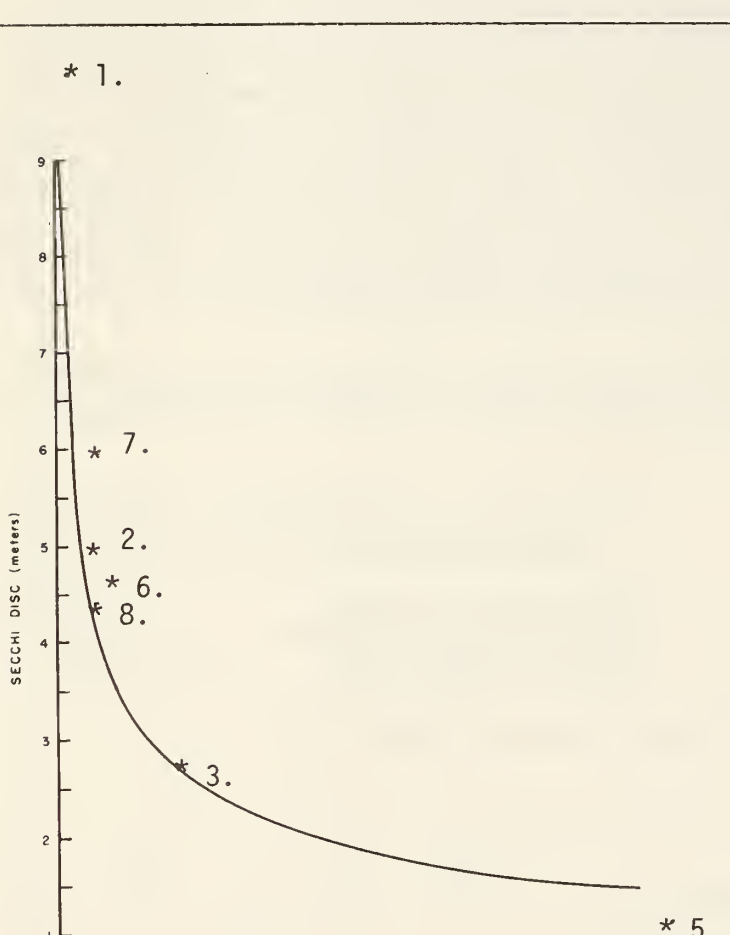
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro.
July 4	4.0	1.8						
11	3.0	1.6						
18	4.0	2.4						
25	5.0	1.2						
Aug. 1	5.0	1.5						
22	5.5	1.3						
29	4.5	1.8						
Sept.6	4.7	3.0						
Mean	4.5	1.8						

Although the Secchi disc readings and chlorophyll a concentrations fluctuated during the sampling period, no trends are apparent. Based on the seasonal averages of the two parameters measured, Big Straggle Lake would be considered unenriched, characterized by a moderately high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Big Straggle Lake from 1971 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971	3.8	2.1						
1972	-	-						
1973	4.6	4.0						
1974	4.8	1.4						
1975	6.0	1.7						
1976	4.5	1.8						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Big Straggle Lake - 1971
7. Big Straggle Lake - 1975
8. BIG STRAGGLE LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Straggle Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation, and do not appear to prepresent a change in water quality. Continuation of this program is required to establish any long term trends in lake quality.

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Ontario

Ministry of the Environment

BILLINGS LAKE

Glamorgan Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

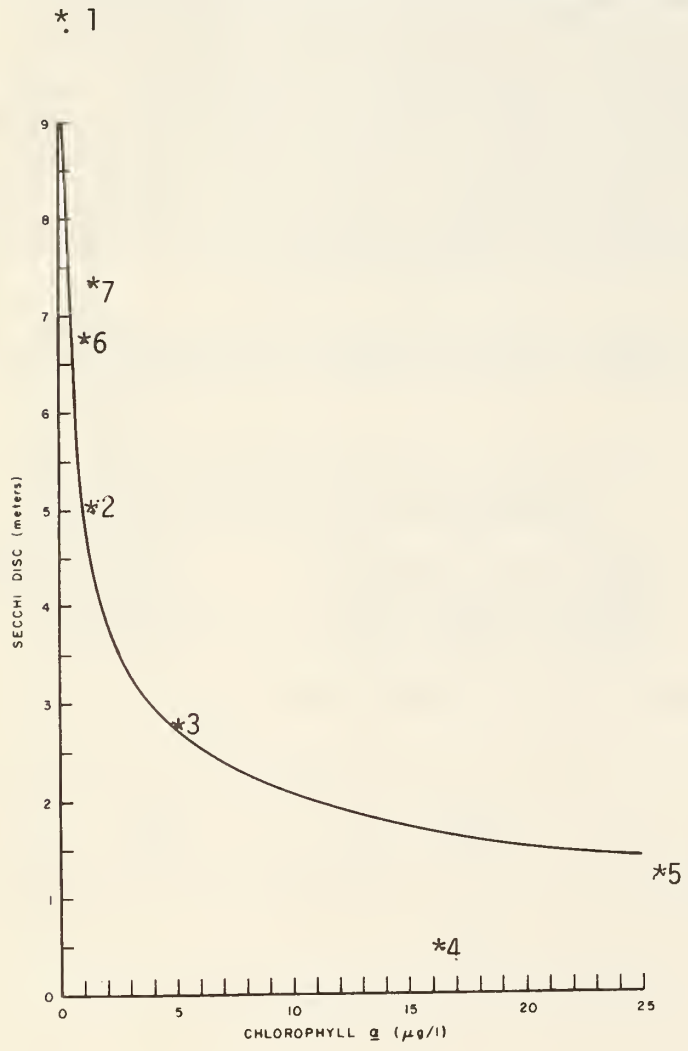
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
Aug. 2	7.2	1.8						
15	6.4	1.1						
Sept.6	8.2	1.4						
Mean	7.3	1.4						

Since samples were collected on only three occasions in 1976, it is difficult to obtain even a reasonably accurate estimate of the trophic status of Billings Lake.
Based on the seasonal mean, for the available data, Billings Lake would be considered unenriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Billings Lake from 1973 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	6.7	1.0						
1974	6.5	0.7						
1975	6.7	1.2						
1976	7.3	1.4						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Billings Lake - 1973
7. BILLINGS LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Billings Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Again, it must be emphasized that only limited data is available for 1976, but it would appear that no significant changes in Secchi disc readings or chlorophyll a concentrations have occurred in the past four years. This would indicate a relatively stable lake condition from a water clarity and algal density standpoint.

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Ontario

Ministry of the
Environment

BIRD LAKE
Town of Bracebridge
District Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

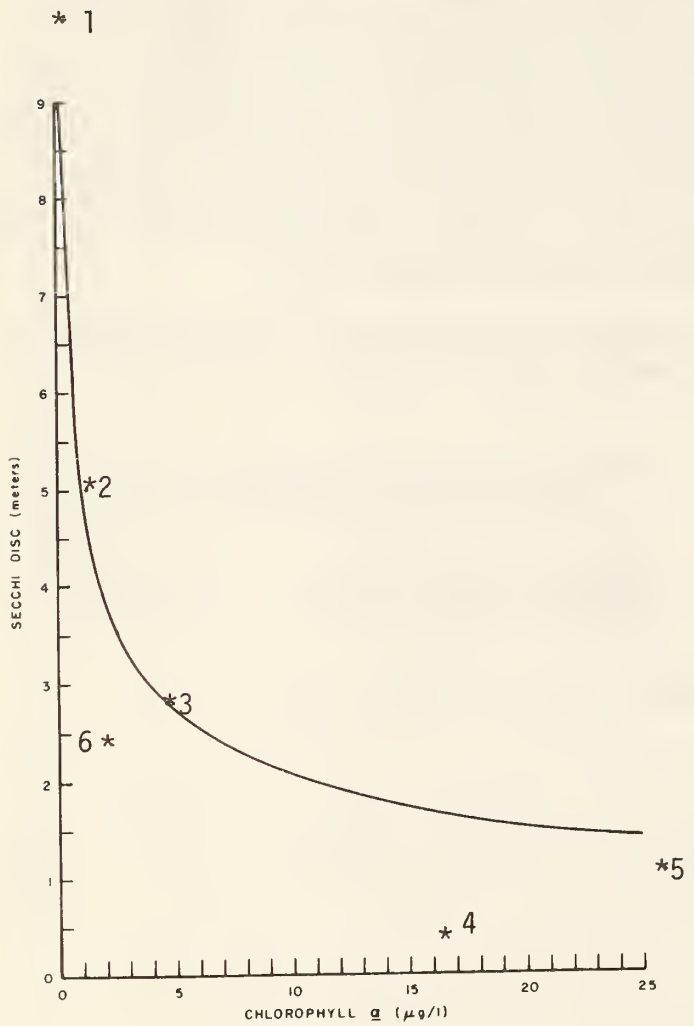
Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
July 5	2.0	4.2						
Aug. 15	2.0	2.5						
22	2.5	0.6						
29	2.5	1.9						
Mean	2.3	2.3						

Since samples were collected on only four occasions in 1976, it is difficult to obtain even a reasonably accurate estimate of the trophic status of Bird Lake.

The lowest Secchi disc readings were observed on July 5 and August 15, and at the same time, chlorophyll a values were highest. Bird Lake is a coloured water lake, and therefore cannot be classified as to status of enrichment by the system outlined above. Based only on the limited chlorophyll a data available, Bird Lake appears to be moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Bird Lake in 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	2.3	2.3						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. BIRD LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Bird Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Based on the limited data available, Bird Lake would be positioned considerably below the established curve because of the reduction in water clarity by the coloured water (Fig. 1); however, the inclusion of Bird Lake on the graph for comparative purposes is not justified.

If the frequency of sampling is increased, a better estimate of the enrichment status can be made, based on chlorophyll a concentrations.

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Ontario

Ministry of the
Environment

BOB LAKE
Anson Twp., Provisional County
of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	4.1	2.5						
June 6	4.3	3.3						
20	6.1	1.8						
July 4	6.1	2.2						
25	6.7	1.6						
Aug. 2	6.4	1.9						
22	5.5	1.2						
Sept.6	4.9	2.7						
Mean	5.5	2.2						

The Secchi disc readings increased from a low of 4.1 m on May 24, to a maximum reading of 6.7 m on July 25, and then declined again to 4.9 m on September 6. The chlorophyll a concentrations generally followed a similar trend. Based on the season averages of these two parameters, Bob Lake would be considered unenriched, with moderately low algal densities.

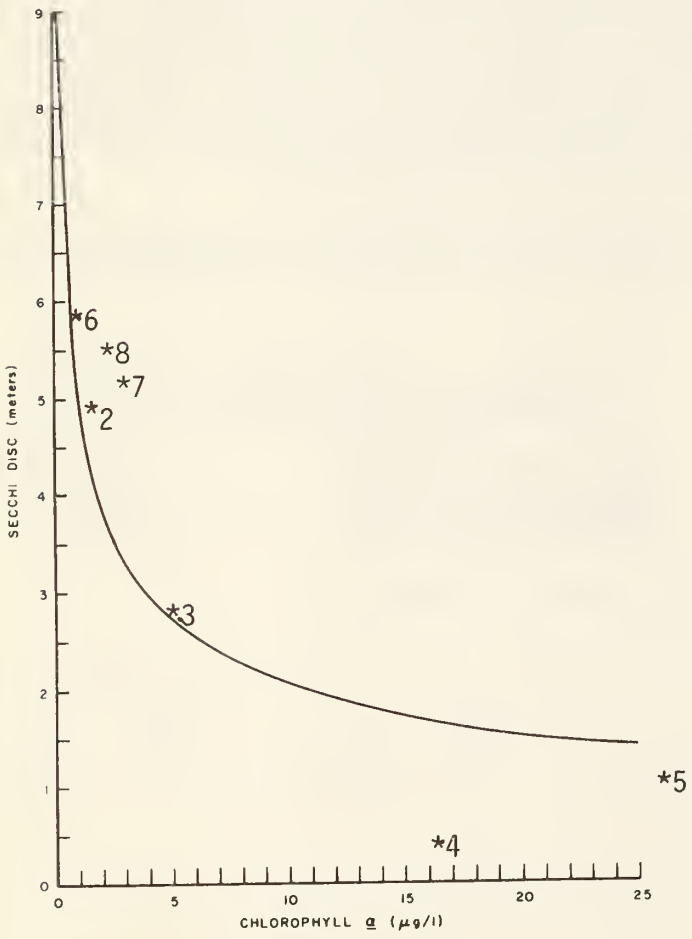
Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Bob Lake from 1972 to 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
* 1972	5.9	1.2						
* 1973	5.2	2.4						
* 1974	4.8	1.9						
1975	5.4	2.9						
1976	5.5	2.2						
"								
"								

** from Dillon, 1974

~~* based on one set of data only~~

* 1



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Bob Lake - 1972
7. Bob Lake - 1975
8. BOB LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Bob Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long term trends in lake quality.

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Ontario

Ministry of the
Environment

CANNING LAKE
Minden & Snowdon Twps., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

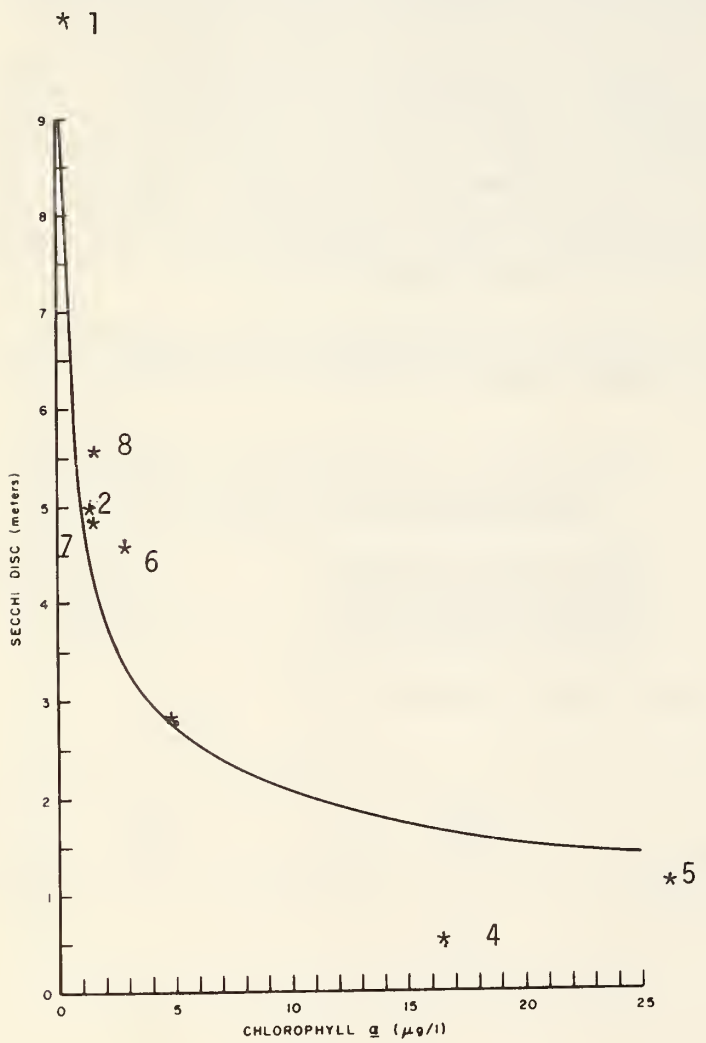
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 30	5.2	0.2						
June 6	6.1	1.1						
13	5.2	2.3						
20	4.9	2.1						
July 4	7.3	2.2						
Aug. 2	4.6	2.1						
22	6.1	2.0						
Oct. 11	5.2	2.9						
Mean	5.6	1.9						

Although there was variation in both the Secchi disc readings and chlorophyll a concentrations, no trends are apparent, except that chlorophyll a concentrations were lowest in the spring.

Based on the seasonal averages for Secchi disc readings and chlorophyll a Canning Lake would be considered unenriched, characterized by a high degree of transparency, and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Canning Lake

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	4.6	3.0						
1973	5.6	1.8						
1974	4.8	1.6						
1975	4.9	1.6						
1976	5.6	1.9						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Canning Lake - 1972
7. Canning Lake - 1975
8. CANNING LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Canning Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation and do not appear to represent a change in water quality. Continuation of this program is required to establish any long term trends in lake quality.

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Ontario

CHANDOS LAKE
Chandos Twp., Peterborough County

Ministry of the Environment

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

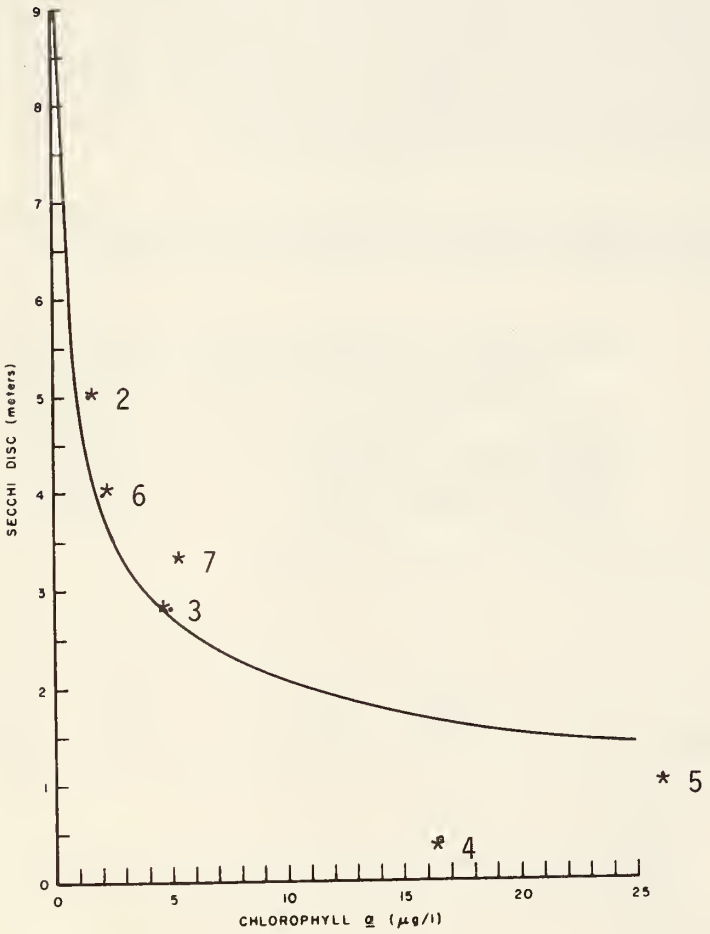
Date	Stn. - Main S.D.	Chloro. a	Stn. #2 S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro.
June 6	4.6	2.6	3.5	3.4				
July 11	3.7	2.1	3.1	5.2				
Aug. 2	3.8	1.5	3.1	5.3				
Sept. 6	3.8	2.5	3.5	6.8				
Mean	4.0	2.2	3.3	5.2				

Since samples were collected on only four occasions in 1976 it is difficult to obtain even a reasonably accurate estimate of the trophic status of Chandos Lake. The available data indicates a distinct variation in water quality between the two stations. Based on the seasonal means for the two parameters measured, the portion of the Lake where Stn. 1 is located would be considered moderately enriched, whereas the Lake, in the vicinity of Stn. 2 would be considered enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Chandos Lake from 1972 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	#2 Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
* 1972	3.6	2.0						
** 1973	4.9	1.7						
* 1974	4.0	1.2						
*** 1975	5.2	2.3						
1976	4.0	2.2	3.3	5.2				
"								
"								

* mean of 4 stations
~~** mean of 3 stations~~
*** based on 1 set of data
* 1



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. CHANDOS LAKE- STN. - Main - 1976
7. CHANDOS LAKE -STN.2 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Chandos Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations and do not appear to represent a change in water quality. Continuation of this program with more frequent sampling at both stations, is required to establish any long term trends in lake quality.

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Ontario

Ministry of the
Environment

CLEAR LAKE
Town of Bracebridge, District
Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 7	6.3	1.2						

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Clear Lake in 1976

Year	Stn. Main S.D.	Stn. Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
1971								
1972								
1973								
1974								
1975								
* 1976	6.3	1.2						
"								
"								

1 sampling only

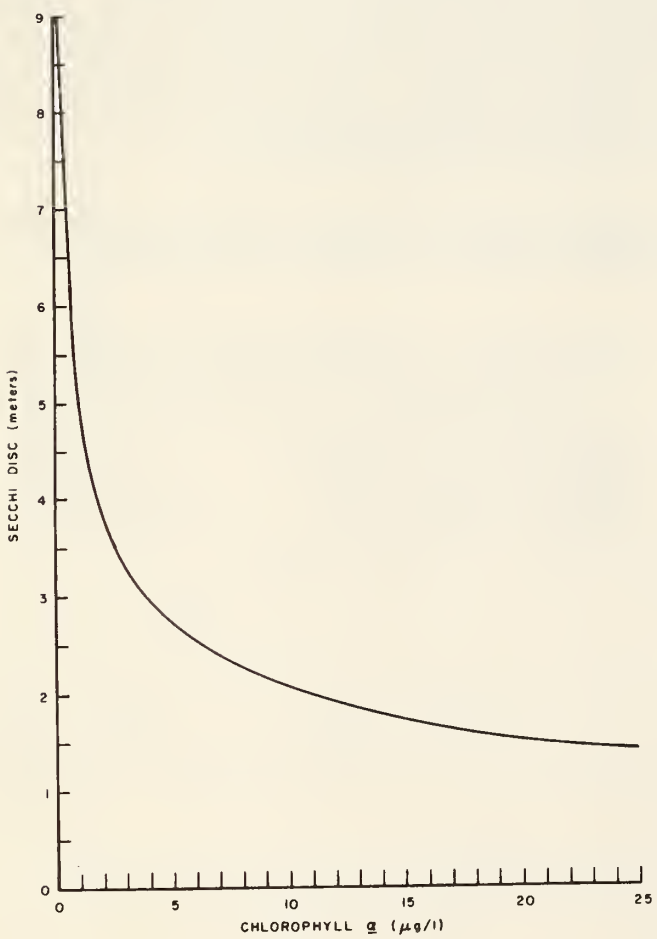

Figure 1: The relationship between Secchi disc and chlorophyll a for and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continuation of this program, with a more frequent sampling, is required, before the trophic status of Clear Lake can be determined.

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Ontario

Ministry of the
Environment

CLEARWATER LAKE
Town of Gravenhurst, District
Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

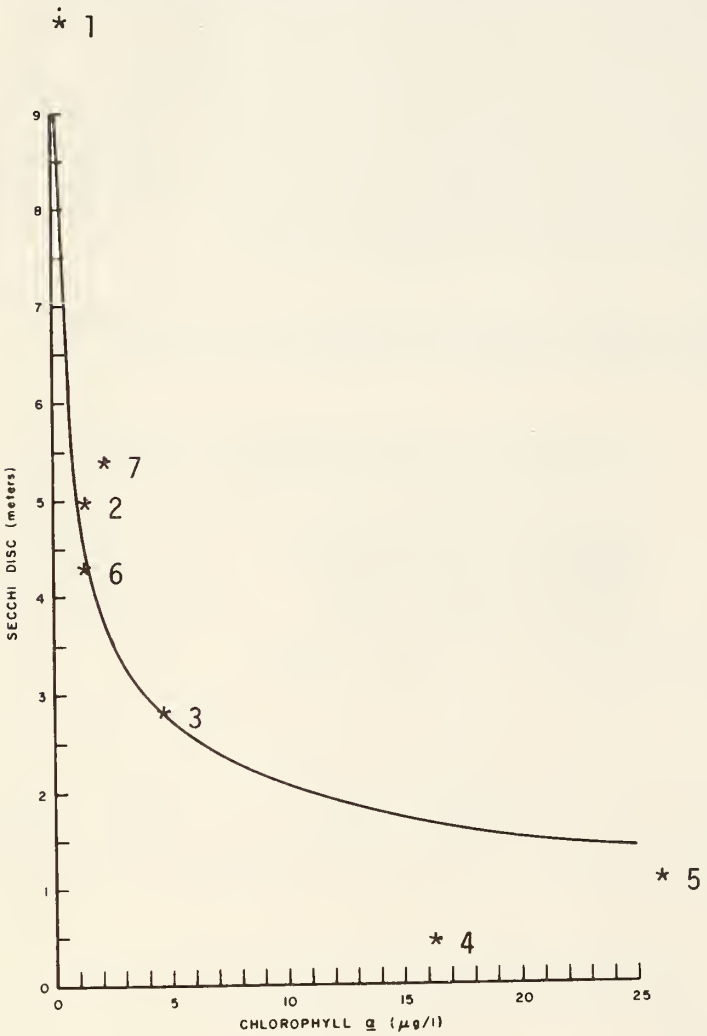
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 30	4.5	1.6						
June 6	4.5	2.0						
20	5.3	1.6						
July 4	5.0	1.8						
11	5.3	1.8						
Aug. 2	6.3	0.9						
15	6.0	1.4						
Sept.6	5.5	1.8						
12	6.0	3.8						
19	5.5	1.4						
26	5.5	2.1						
Mean	5.4	1.8						

Both the Secchi disc readings and chlorophyll a concentrations varied during the sampling period, but no trends were apparent. Based on the seasonal means for these two parameters, Clearwater Lake would be considered unenriched, characterized by a high degree of water transparency, and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Clearwater Lake from 1975 and 1976

Year	Stn. Main S.D.	Stn. Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
1971								
1972								
1973								
1974								
1975	4.3	1.5						
1976	5.4	1.8						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Clearwater Lake - 1975
7. CLEARWATER LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Clearwater Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Whether the improvement in water transparency between 1975 and 1976 reflects an alteration in lake quality, or is the result of natural yearly variation can not be determined from the available data. Continued participation in this program is required to determine any long term trends in lake quality.

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Ontario

Ministry of the
Environment

COLLINGWOOD HARBOUR
Nottawasaga Twp., Simcoe County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

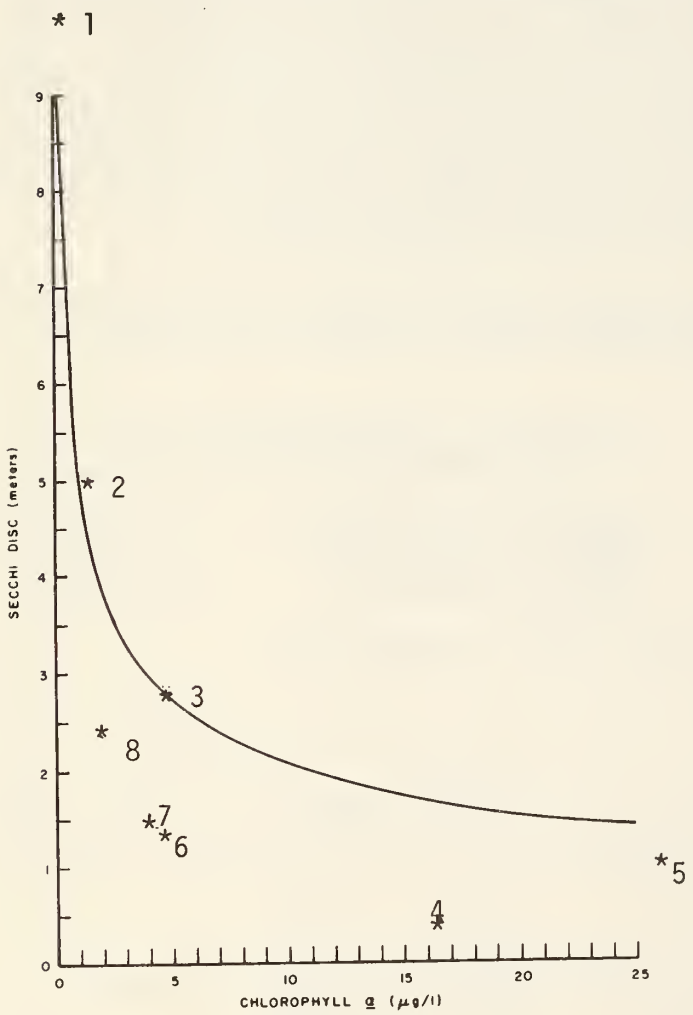
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. #2 S.D.	Chloro. a	Stn. #3 S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 27	1.0	12.0	1.2	12.0	2.4	3.4		
July 8	1.5	2.2	2.0	2.5	2.5	1.2		
15	1.0	3.9	1.0	3.5	1.5	2.6		
28	1.5	3.2	1.5	2.6	2.0	0.9		
Aug.18	2.0	2.0	2.0	1.9	3.0	2.0		
Mean	1.4	4.7	1.5	4.5	2.3	2.0		

The lack of samples from the latter part of the summer hampers the determination of the Harbour's tropic status. Based on the available data, the areas of the Harbour where Stn. 1 and 2 are located, would be considered enriched; characterized by very poor water transparency and high algal densities. This poor transparency is in part due to the presence of suspended material other than algae in the water column. The area where Stn. 3 is located is also characterized by poor water transparency, however, the algal densities here were relatively low.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Collingwood Harbour in 1976

Year	Stn. Main S.D.	Chloro. a	Stn. #2 S.D.	Chloro. a	Stn. #3 S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	1.4	4.7	1.5	4.5	2.3	2.0		
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Collingwood Harbour - Stn. 1 - 1976
7. Collingwood Harbour - Stn. 2 - 1976
8. Collingwood Harbour - Stn. 3 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Collingwood Harbou and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continued participation in this program, with a greater number of samples being collected during the season, is required to monitor any charge in the Harbour's water quality.

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Ontario

Ministry of the
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CRYSTAL LAKE
Galway Twp., Peterborough County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main(L.Black B.) S.D.	Chloro. a	Stn.U. Black Bay S.D.	Chloro. a	Stn. Pier S.D.	Chloro. a	Stn.Clear Bay S.D.	Chloro.
July 18	3.4		3.1		2.5		2.7	

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Crystal Lake in 1976

Year	Stn. U. Black Bay S.D.	Stn. U. Black Bay Chloro. a	Stn. L. Black Bay S.D.	Stn. L. Black Bay Chloro. a	Stn. Pier S.D.	Stn. Pier Chloro. a	Stn. Clear Bay S.D.	Stn. Clear Bay Chloro. a
1971								
1972								
1973								
1974								
1975								
* 1976		3.4		3.1		2.5		2.7
"								
"								

1 set of samples

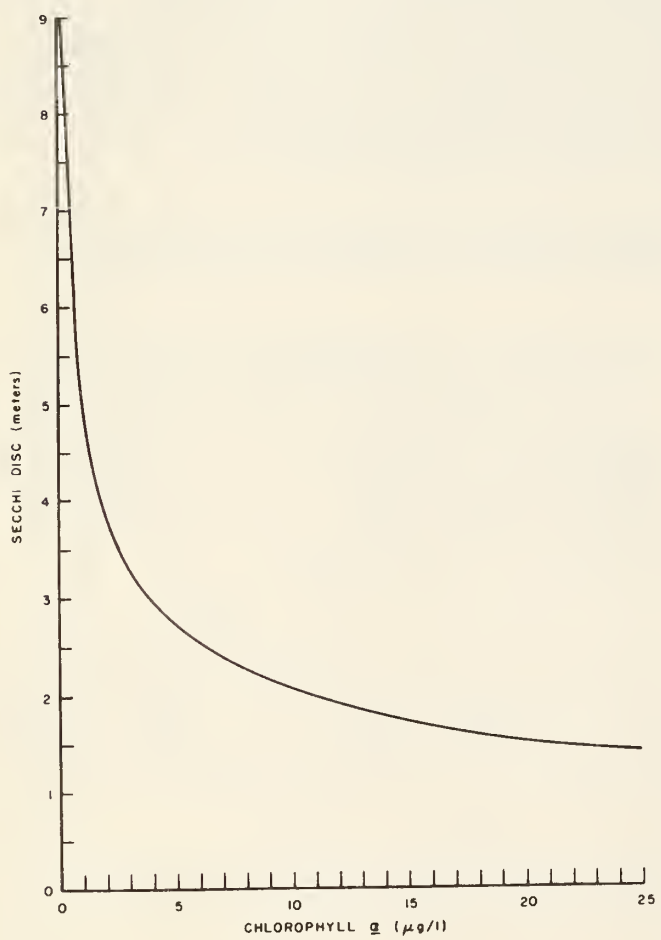

Figure 1: The relationship between Secchi disc and chlorophyll a for Crystal Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continued participation in this program, with a greater sampling frequency, is required to determine the trophic status of Crystal Lake.

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Ontario

Ministry of the
Environment

DAVIS LAKE
Lutterworth Twp., Provisional County
Of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

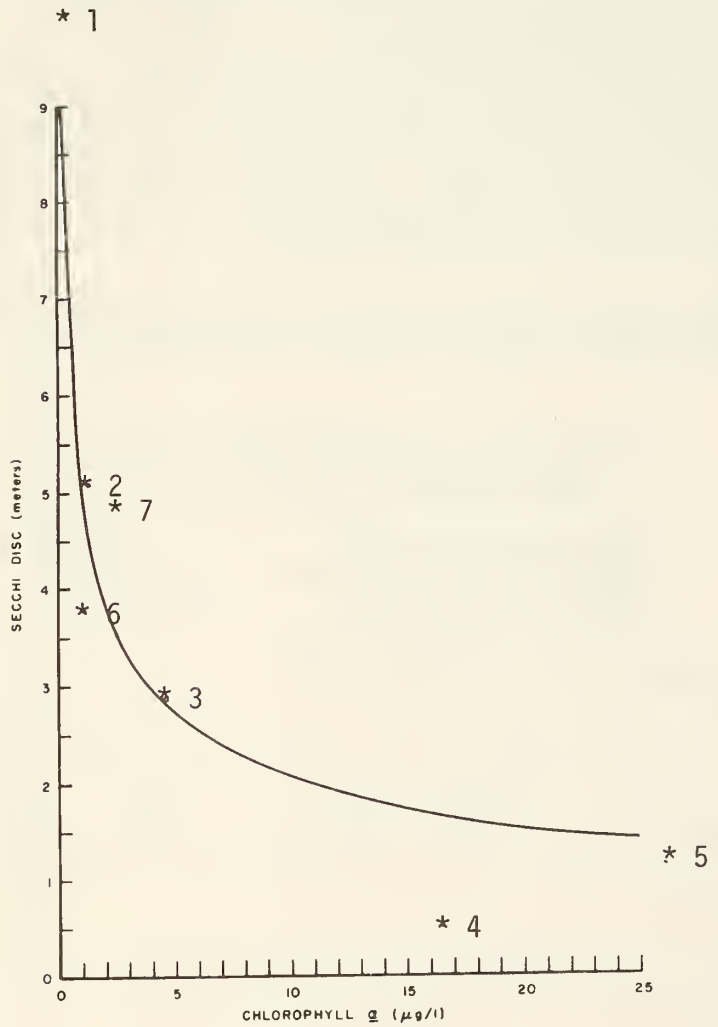
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
Aug. 15	4.6	2.3						
22	5.2	2.1						
Mean	4.9	2.2						

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Davis Lake from 1972 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	4 6	1.9						
1973	4.9	3.7						
1974	3.6	1.4						
1975	3.8	1.4						
* 1976	4.9	2.2						
"								
"								

* Based on 2 sets of data



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Davis Lake - 1975
7. DAVIS LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Davis Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The inclusion of the Davis Lake information for 1976 is not entirely justified due to the limited amount of data available; however, for comparative purposes the 1976 position has been indicated.

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Ontario

Ministry of the Environment

DRAG LAKE

Dudley & Dysart Twps., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

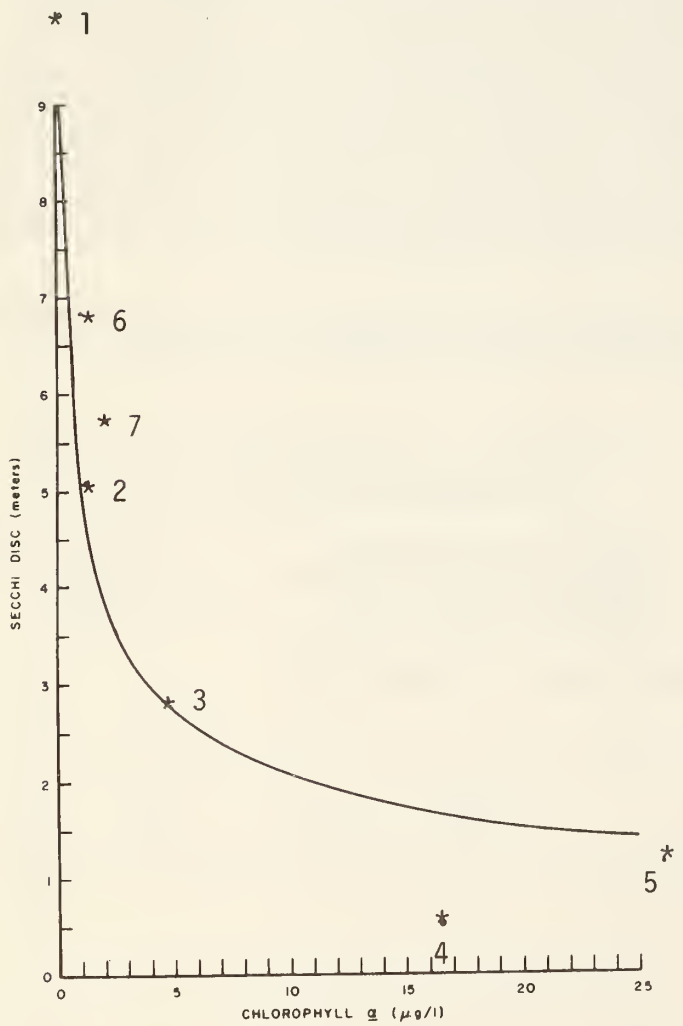
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
July 4	7.0	1.4						
11	5.8	1.6						
18	5.5	2.0						
25	6.4	3.0						
Aug. 2	5.2	3.4						
15	5.5	3.2						
22	5.2	2.4						
Mean	5.8	2.4						

The chlorophyll a concentrations increased from a low of 1.4 ug/l at the beginning of July to a peak of 3.4 ug/l the beginning of August, and then declined during the remainder of the sampling period. This same trend was not apparent in the Secchi disc readings. Based on the seasonal means for these 2 parameters Drag Lake would be considered unenriched, characterized by a high degree of water transparency, and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Drag Lake from 1973 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	6.0	2.9						
1974	6.2	0.6						
1975	6.8	1.4						
1976	5.8	2.4						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Drag Lake - 1975
7. DRAG LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Drag Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Whether the decreased water transparency, and increased algal densities during 1976 are significant in terms of lake quality can not be determined from the available data. Continued participation in the program is required to establish if this represents a trend in water quality, or is a natural fluctuation.

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Ontario

Ministry of the Environment

EAST LAKE

Harcourt Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

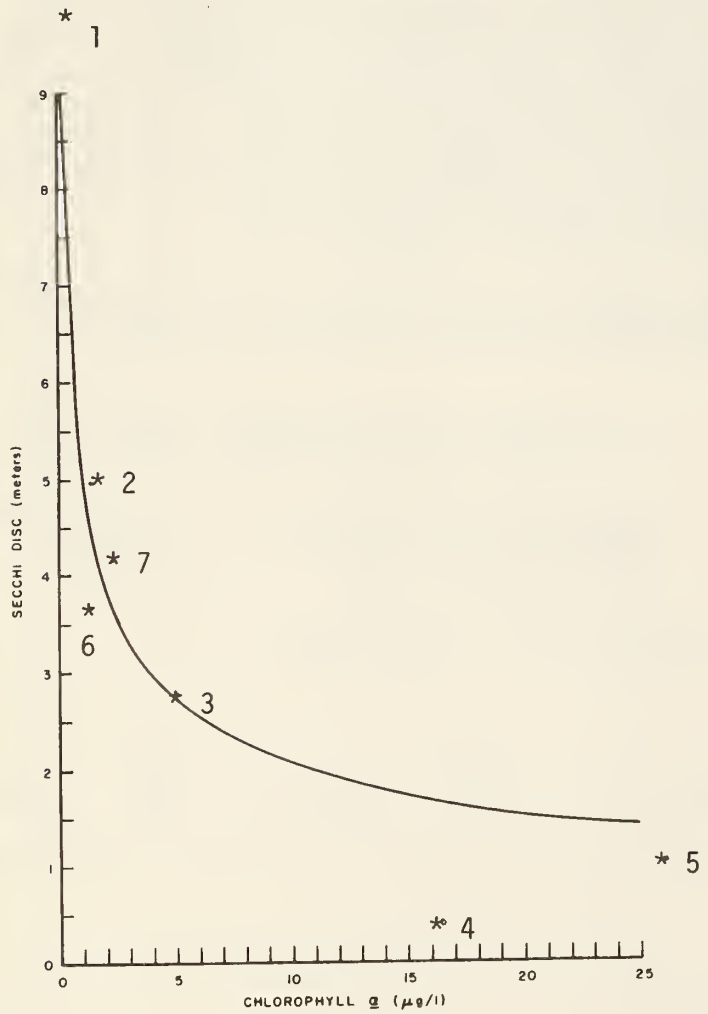
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 4	3.5	1.7						
11	3.3	2.1						
18	4.0	2.5						
25	4.3	2.5						
Aug. 2	4.5	4.1						
8	4.3	1.6						
15	4.7	1.8						
22	4.5	2.1						
29	5.0	3.0						
Mean	4.2	2.3						

The Secchi disc readings indicate there was a gradual increase in water transparency from the beginning of July to the end of August. Although the chlorophyll a concentrations varied considerably during the sampling period, there is no trend apparent. Based on the seasonal means for these 2 parameters, East Lake would be considered moderately enriched, characterized by moderately high degree of water transparency, and moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from East Lake from 1971 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971	4.3	2.7						
1972	-	-						
1973	5.0	1.9						
1974	3.6	1.5						
1975	4.2	2.2						
1976	4.2	2.3						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. East Lake - 1974
7. EAST LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for East Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The presence of only minor variations in the Secchi disc readings and chlorophyll a concentrations over the last 3 years indicate a relatively stable lake condition. Continued participation in the program is required to determine if this condition persists.

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Ministry of the
Environment

FARQUHAR LAKE
Harcourt Twp., Provisional County
of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

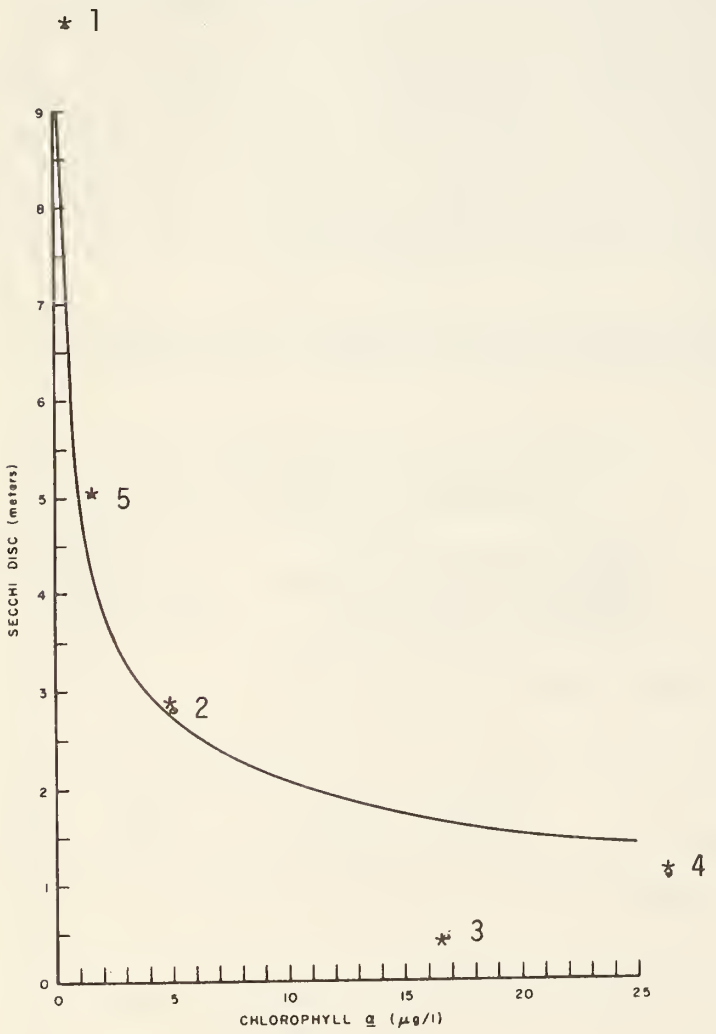
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
Aug. 2	5.3	1.5						
9	4.0	1.3						
22	5.0	1.1						
Sept.5	5.5	2.2						
Mean	5.0	1.5						

Since samples were collected on only four occasions in 1976, it is difficult to obtain even a reasonably accurate estimate of the trophic status of Farquhar Lake.

Based on the available data for the two parameters measured, Farquhar Lake would be considered unenriched, characterized by a high degree of water transparency, and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Farquhar Lake In 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	5.0	1.5						
"								
"								



1. Kennisis Lake - 1975
2. Gravenhurst Bay - 1974
3. Lake Scugog - 1972
4. Moira Lake - 1972
5. FARQUHAR LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Farquhar Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

More frequent sampling is required in future years, if an accurate assessment of Farquhar Lake's trophic status is to be made. Continued participation in this program will enable any long term trends in lake quality to be defined.

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Ministry of the Environment

FOUR MILE LAKE

Somerville Twp., Victoria County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 20	6.3	1.3						
July 25	-	2.1						
Aug. 22	5.2	0.9						
Mean	5.8	1.4						

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Four Mile Lake in 1976.

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	5.8	1.4						
"								
"								

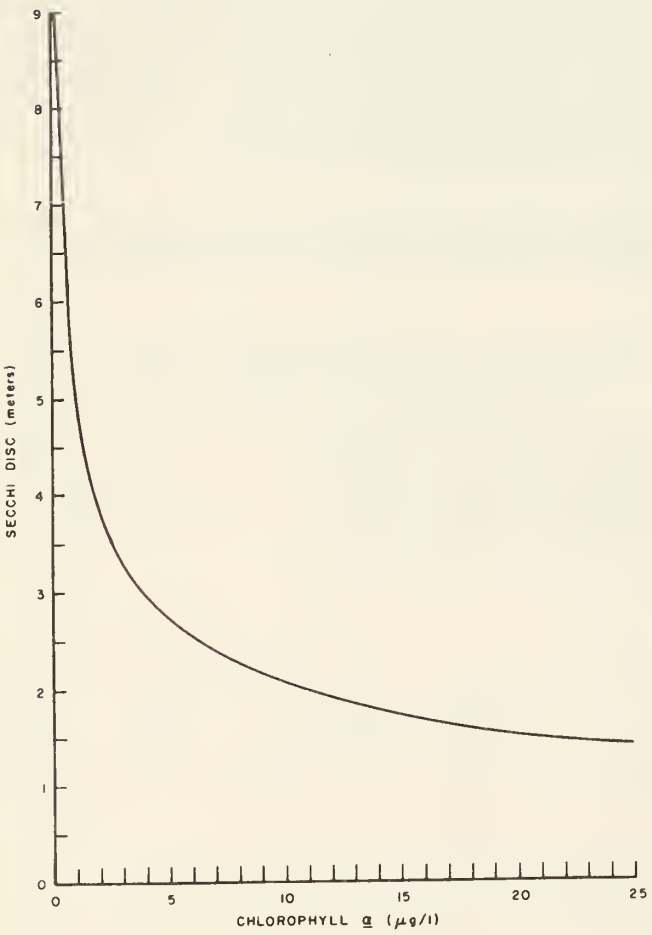

Figure 1: The relationship between Secchi disc and chlorophyll a for and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continuation of this program, with more frequent sampling, is required before the trophic status of Four Mile Lake can be determined.

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Ministry of the Environment

GEORGE'S LAKE
Harcourt Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

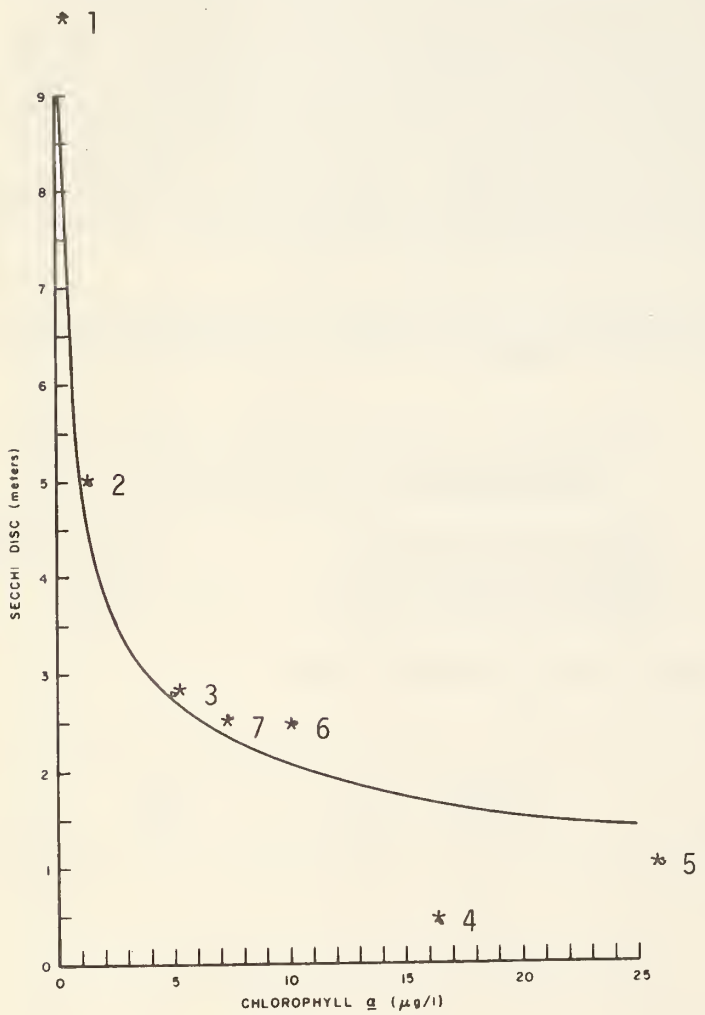
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 4	2.3	6.0						
11	2.8	9.2						
18	2.8	13.0						
25	2.8	8.7						
Aug. 9	2.5	2.4						
15	2.5	4.1						
22	2.3	5.7						
29	2.8	9.7						
Sept.6	2.3	5.7						
Mean	2.6	7.2						

The Secchi disc readings for the period sampled remained uniform, whereas the chlorophyll a concentrations fluctuated considerably, with no definite trends apparent. Based on the season means for the two parameters measured, George's Lake would be considered enriched, characterized by a low degree of water transparency and high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from George's Lake from 1973 to 1976

Year	Stn.- S.D.	Main Chloro. a	Stn. S.D.	"0" Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	2.2	5.8	-	-				
1974	2.3	3.0	2.2	3.9				
1975	2.5	10.2	2.0	6.4				
1976	2.6	7.2	-	-				
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. George's Lake - 1975
7. GEORGE'S LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for George's Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the four years this program has been conducted on George's Lake, the Secchi disc readings have remained constant, however there has been a marked variation in chlorophyll a concentrations. Continued participation in this program is recommended to determine if any long term trends in lake quality are evident.

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Ministry of the Environment

GO HOME BAY

Twp. of Georgian Bay, District Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

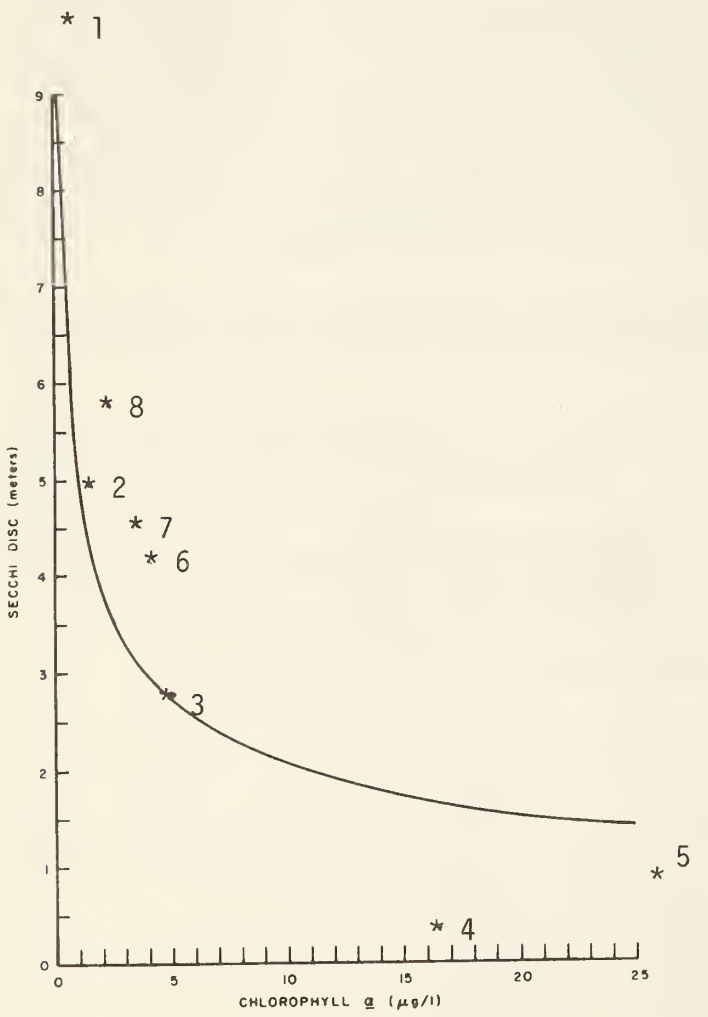
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (1) S.D.	Chloro. a	Stn. #2 S.D.	Chloro. a	Stn. #3 S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 18	3.5	3.2	4.4	3.5	6.0	2.2		
25	5.3	2.5	5.0	3.5	6.0	2.0		
Aug. 2	3.8	3.6	4.5	3.2	6.4	1.6		
8	4.0	3.9	4.2	4.2	5.3	2.8		
Sept. 5	4.0	6.3	-	-	4.3	3.1		
Oct. 3	-	-	-	-	6.0	1.3		
Mean	4.1	3.9	4.5	3.6	5.7	2.2		

The Secchi disc readings and chlorophyll a concentrations fluctuated at all three stations during the sampling period, but no trends are apparent. The season mean for the measured parameters at Stn. 1 & Stn. 2 would indicate that the portion of the Bay in the vicinity of these stations is moderately enriched, characterized by a moderate degree of water transparency and moderate algal densities. The area of the Bay where Stn. 3 is located would be considered unenriched, characterized by a high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Go Home Bay

Year	Stn. #1 S.D.	Chloro. a	Stn. #2 S.D.	Chloro. a	Stn. #3 S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	4.1	3.9	4.5	3.6	5.7	2.2		
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. GO HOME BAY - Stn. 1 - 1976
7. GO HOME BAY - Stn. 2 - 1976
8. GO HOME BAY - Stn. 3 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Go Home Bay and a number of other well-known recreational lakes in the province. All data are seasonal means.

Although this sampling program may be persued at all 3 stations, due to the similarity of water quality at Stn. 1 and Stn. 2, either of these stations, plus Stn. 3 should be definitely continued to be sampled, in order to examine long term water quality trends.

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Ministry of the
Environment

GO HOME LAKE
Twp. of Georgian Bay, District
Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

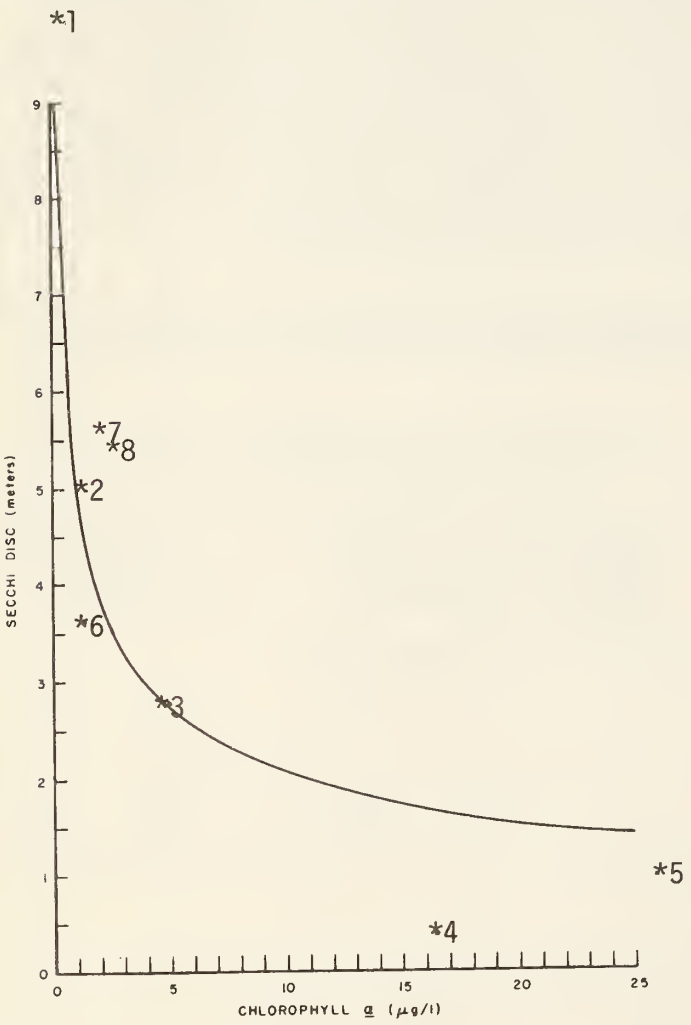
Date	Stn. - Main(North) S.D.	Chloro. a	Stn.(South) S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 6	5.5	-	4.3	2.4				
12	5.0	2.2	5.5	2.3				
20	5.0	1.6	5.5	2.0				
July 4	10.3	1.4	10.5	2.4				
11	4.8	1.5	5.3	2.8				
18	5.0	1.9	5.0	2.4				
25	5.5	0.9	5.3	1.4				
Aug. 2	5.5	2.2	5.0	1.7				
9	4.3	2.2	3.8	2.3				
15	5.5	2.4	5.0	2.8				
22	4.8	2.4	4.5	2.7				
Sept 5	5.5	1.7	4.5	1.9				
Mean	5.6	1.9	5.4	2.3				

The Secchi Disc readings at both of the stations sampled exhibited a high degree of variability, which was not as evident in the chlorophyll a concentration. Based on the seasonal means for the two parameters measured, Go Home Lake would be considered unenriched, characterized by a high degree of transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Go Home Lake

Year	Stn. North S.D.	Chloro. a	Stn. South S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
* 1971	3.6	1.4						
1972								
1973								
1974								
1975								
1976	5.6	1.9	5.4	2.3				
"								
"								

* mean of two stations



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Go Home Lake - 1971
7. GO HOME LAKE - North STN. - 1976
8. GO HOME LAKE - South STN. - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Go Home Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The 1976 data indicates a considerable improvement in water transparency since 1971. Continued participation in this program is required to determine if this is indicative of an improvement in lake quality or is the result of natural fluctuations.

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Ministry of the Environment

GRACE LAKE

Dudley & Harcourt Twps., Provisional

County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

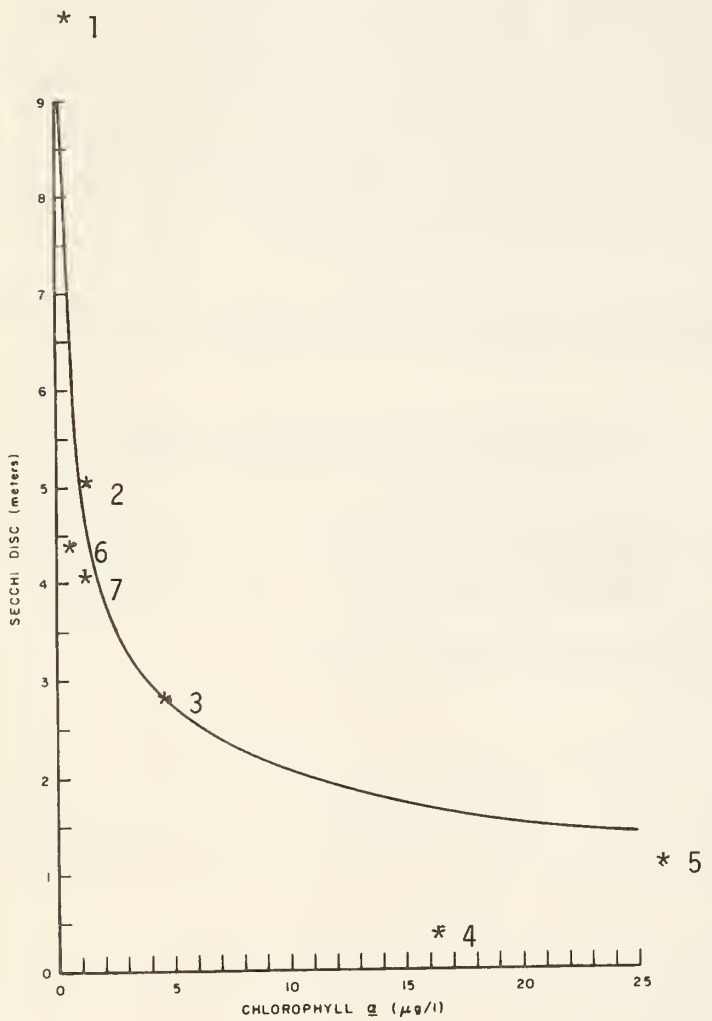
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 16	3.9	1.0						
30	5.0	0.5						
June 13	-	1.9						
27	3.0	2.1						
July 11	2.7	1.2						
Aug. 2	3.3	1.9						
8	3.9	1.9						
22	5.7	1.2						
Sept. 6	5.7	0.9						
Mean	4.2	1.4						

The Secchi disc readings improved during the latter part of the sampling period, after reaching a minimum of 2.7 m on July 11. The chlorophyll a concentrations exhibited minor variations, with no definite trend being apparent. Based on season means for the two parameters measured, Grace Lake would be considered moderately enriched, characterized by a moderately high degree of transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Grace Lake from 1975 and 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975	4.4	1.1						
1976	4.2	1.4						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Grace Lake - 1975
7. GRACE LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Grace Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the two years of sampling, no significant variation has occurred in the two parameters measured, which would indicate a relatively stable lake condition. Continued participation in this program is recommended in order to verify this conclusion.

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Ontario

Ministry of the Environment

GULL LAKE

Lutterworth Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

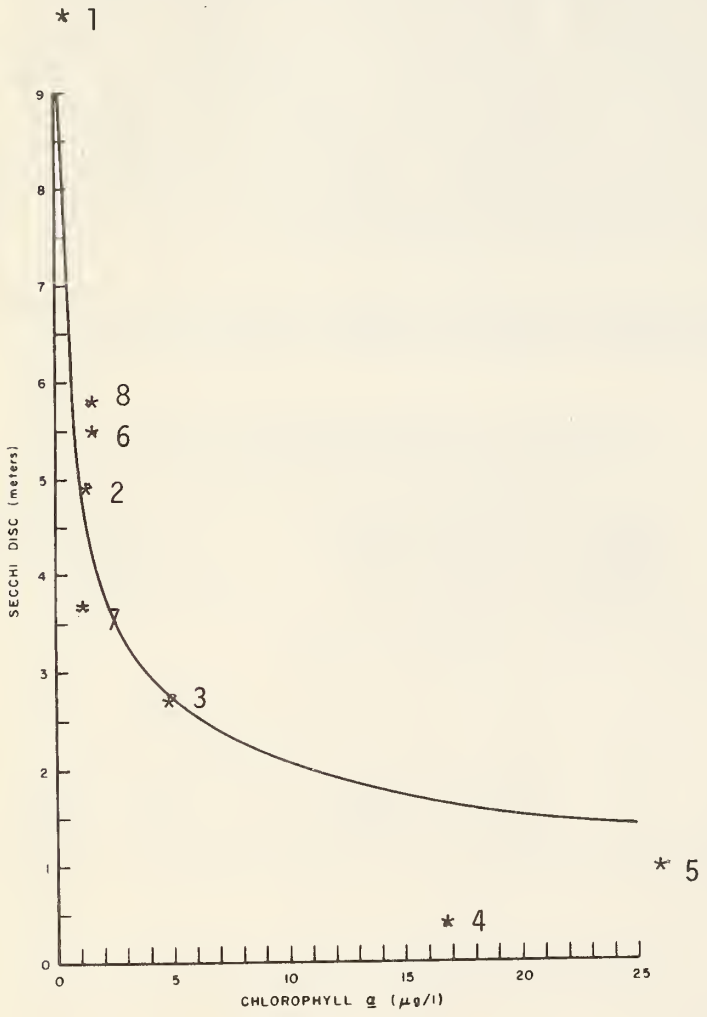
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (1) S.D.	Chloro. a	Stn. #2 S.D.	Chloro. a	Stn. #3 S.D.	Chloro. a	Stn. #4 S.D.	Chloro. a
May 24	4.0	2.1	4.5	2.3	4.0	2.3	5.0	2.4
30	4.0	1.6						
June 6	4.0	2.6						
13	6.5	1.5						
20			3.5	1.8				
27			4.8	1.4				
July 4	6.5	1.6	3.8	1.2				
10	5.0	1.0						
18	6.0	1.7	3.5	1.3	5.5	1.6	5.5	1.8
25	5.0	1.3			6.7	2.1	6.5	1.8
Aug. 2	7.5	3.1	3.5	1.7	6.3	2.0	5.8	1.6
15	5.0	2.2			4.5	2.0	4.6	2.2
22			3.3	1.1	7.3	2.4	5.0	1.9
29					5.3	1.9	5.8	2.0
Mean	5.4	1.9	3.7	1.5	5.7	2.0	5.5	2.0

Based on the seasonal means for the two parameters measured, the portion of the Lake in the vicinity of Stn. 1, 3 and 4 would be considered unenriched, characterized by a high degree of water transparency and low algal densities. Stn. 3 is moderately enriched, characterized by a moderate degree of transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Gull Lake in 1976

Year	Stn. #1 S.D.	Chloro. a	Stn. #2 S.D.	Chloro. a	Stn. #3 S.D.	Chloro. a	Stn. #4 S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	5.4	1.9	3.7	1.5	5.7	2.0	5.5	2.0
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. GULL LAKE - STN. 1 & 4 - 1976
7. GULL LAKE - STN. 2 - 1976
8. GULL LAKE - STN. 3 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Gull Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of the majority of Gull Lake is comparable to that of Kashagawigamog Lake and is far removed from such highly enriched bodies as Lake Scugog and Moira Lake. Continued participation in this program is required to determine any long-term trends in lake quality.

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Ontario

Ministry of the Environment

HALIBURTON LAKE
Harburn Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

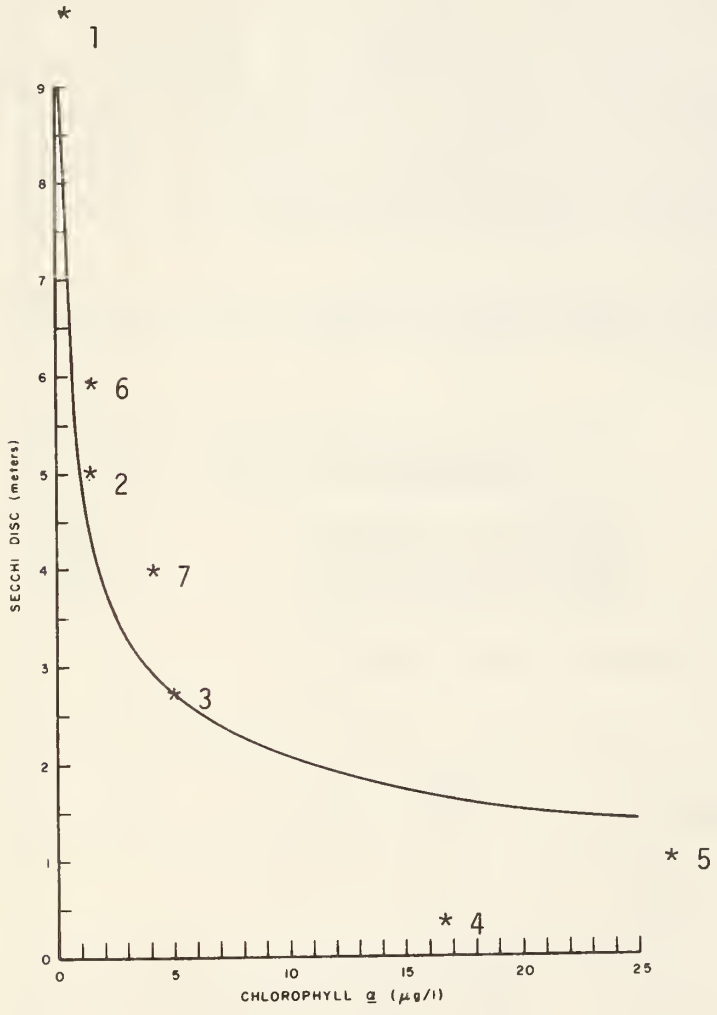
Date	Stn. - Main S.D.	Chloro. a	Stn. - S. Bay S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 23	7.9	1.2	3.4	3.8				
June 6			4.0	3.0				
13	7.3	1.2	7.9	1.1				
20	5.8	1.3	4.0	2.3				
27	5.8	2.2	4.0	4.2				
July 4	4.9	2.6	3.1	2.4				
11	5.2	1.2	3.5	1.6				
18	5.5	2.0	3.4	2.1				
25	5.5	2.4	3.5	7.4				
Aug. 1	6.1	2.3	4.4	4.2				
8			3.8	11.0				
15	6.4	0.7	3.8	8.6				
22	6.1	2.0	4.4	13.0				
29	5.5	1.8	4.1	5.4				
Sept. 6			3.8	2.7				
Oct. 11			3.5	2.4				
Mean	6.0	1.7	4.0	4.7				

The Secchi disc readings at the Main station decreased from May till the beginning of July. This was accompanied by an increase in chlorophyll a concentrations during the same time period. The Secchi disc readings gradually improved at the Main station during the remainder of the sampling period. There was a very pronounced increased in chlorophyll a concentrations in South Bay during August. Based on seasonal means for the two parameters measured, the Main station would be considered unenriched, and the South Bay moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Haliburton Lake from 1972 to 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. - S. Bay S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
*1972	6.3	1.0	3.5	2.7				
1973	6.0	1.8	-	-				
1974	6.7	1.1	3.8	2.4				
1975	6.4	2.5	3.6	3.3				
1976	6.0	1.7	4.0	4.7				
"								
"								

* from Dillon (1974)



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. HALIBURTON LAKE - MAIN STN. - 1976
7. HALIBURTON LAKE - S. BAY - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Haliburton Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ministry of the Environment

HALL'S LAKE
Stanhope Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

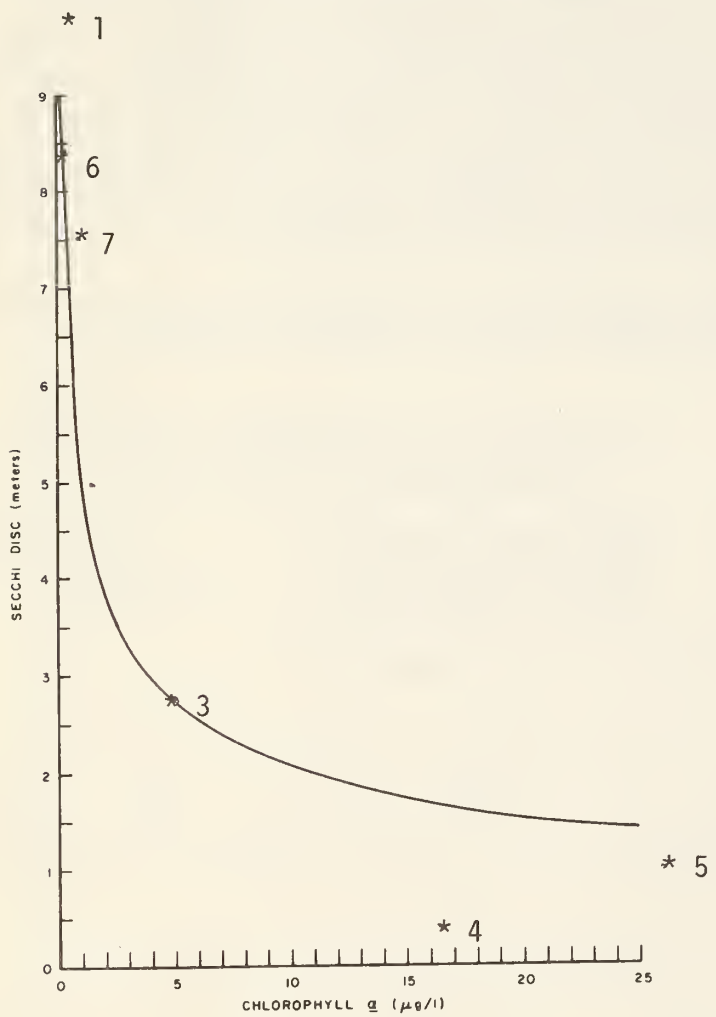
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	6.7	0.8						
July 4	9.1	0.6						
11	6.1	0.8						
18	7.6	1.1						
25	7.6	1.0						
Aug. 2	7.0	1.5						
15	6.7	1.1						
29	8.8	1.7						
Sept. 5	7.6	1.5						
Mean	7.5	1.1						

The variations experienced in both the Secchi disc reading and chlorophyll a concentrations were minor and did not follow a definite trend. The season means for the two parameters measured, reflect the unenriched nature of Hall's Lake. Hall's Lake is typical of the unenriched Pre-Cambrian Shield lakes, which are characterized by a very high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Hall's Lake from 1972 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	8.7	0.7						
1973	7.8	0.7						
1974	7.5	0.4						
1975	8.4	0.6						
1976	7.5	1.1						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Hall's Lake - 1975
7. HALL'S LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Hall's Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations. The minimum variation that has occurred over the last 5 years indicates a relatively stable lake condition from a water clarity and algal density standpoint.

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Ministry of the
Environment

HARP LAKE
Town of Huntsville, District
Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

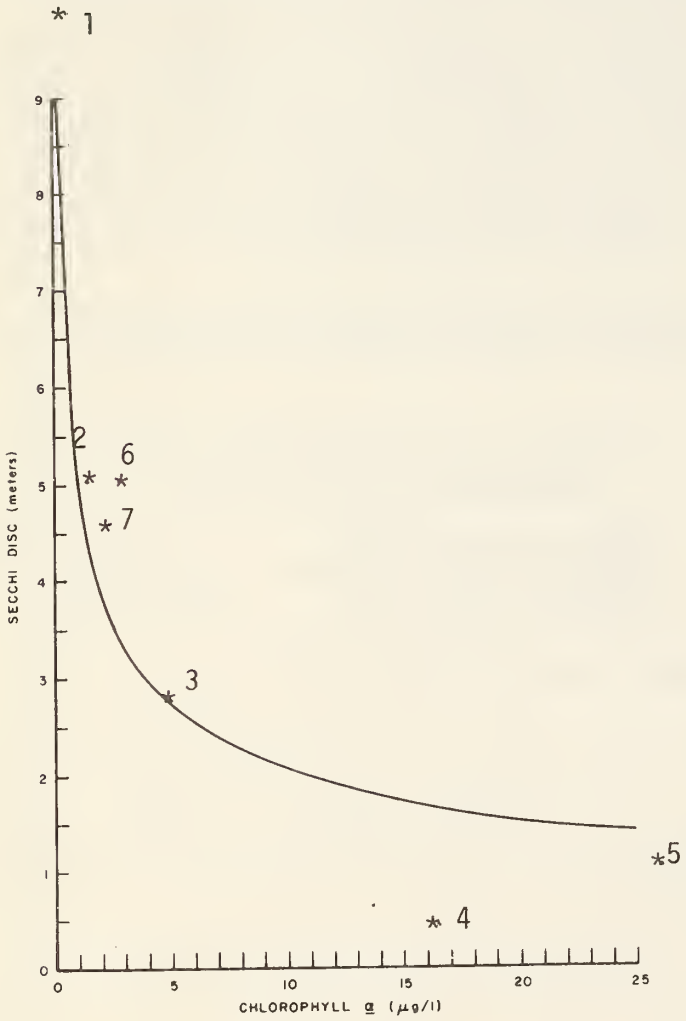
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 18	4.9	2.8						
Aug. 1	4.0	2.2						
Mean	4.5	2.5						

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Harp Lake from 1973 to 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	4.2	3.3						
1974	3.7	2.1						
1975	5.0	3.3						
* 1976	4.5	2.2						
"								
"								

* based on 2 samplings



1. Kennisis Lake - 1975
2. Kasnagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Harp Lake - 1975
7. HARP LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Harp Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The inclusion of the Harp Lake information for 1976 is not entirely justified due to the limited amount of data available; however, for comparative purposes the 1976 position has been indicated. The frequency of sampling must be increased if sufficient data, for comparative purposes is to be obtained.

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Ministry of the Environment

HEAD LAKE
Lexton & Digby Twps., Victoria County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

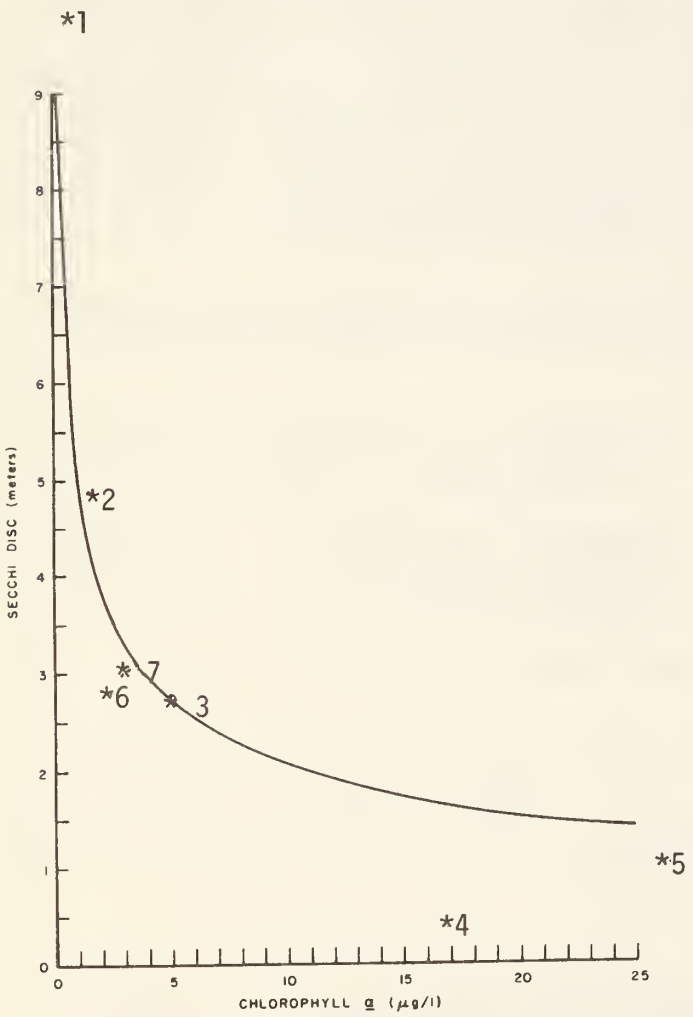
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	3.0	4.9						
30	3.0	0.2						
June 6	3.0	2.5						
13	2.5	4.0						
20	3.5	3.4						
27	3.4	2.6						
July 4	3.0	4.1						
11	2.5	3.1						
18	3.0	2.4						
25	3.0	1.8						
Aug 2	2.5	4.5						
22	3.0	4.6						
29	2.5	2.0						
Sept 6	2.5	3.3						
12	3.5	2.0						
19	3.5	2.0						
Oct 11	4.5	2.8						
Mean	3.0	2.9						

The Secchi disc readings in contrast to the variability of the chlorophyll a concentrations, remained relatively constant throughout the sampling period. The chlorophyll a concentrations did not exhibit any trends during the period sampled. Based on the seasonal means for the two parameters measured, Head Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll *a* (ug/l) data collected from Head Lake from 1972 to 1976

Year	Stn. Main S.D.	Chloro. *a*	Stn. S.D.	Chloro. *a*	Stn. S.D.	Chloro. *a*	Stn. S.D.	Chloro. *a*
1971								
1972	3.2	2.8						
1973	2.9	3.0						
1974	2.8	2.0						
1975	2.8	2.7						
1976	3.0	2.9						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Head Lake - 1975
7. HEAD LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Head Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll *a* values outlined in Table 2 are attributable partly to natural annual fluctuations. The minimal variation that has occurred over the last 5 years indicates a stable lake condition from a water clarity and algal density standpoint.

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Ministry of the Environment

HORSESHOE LAKE

Minden Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

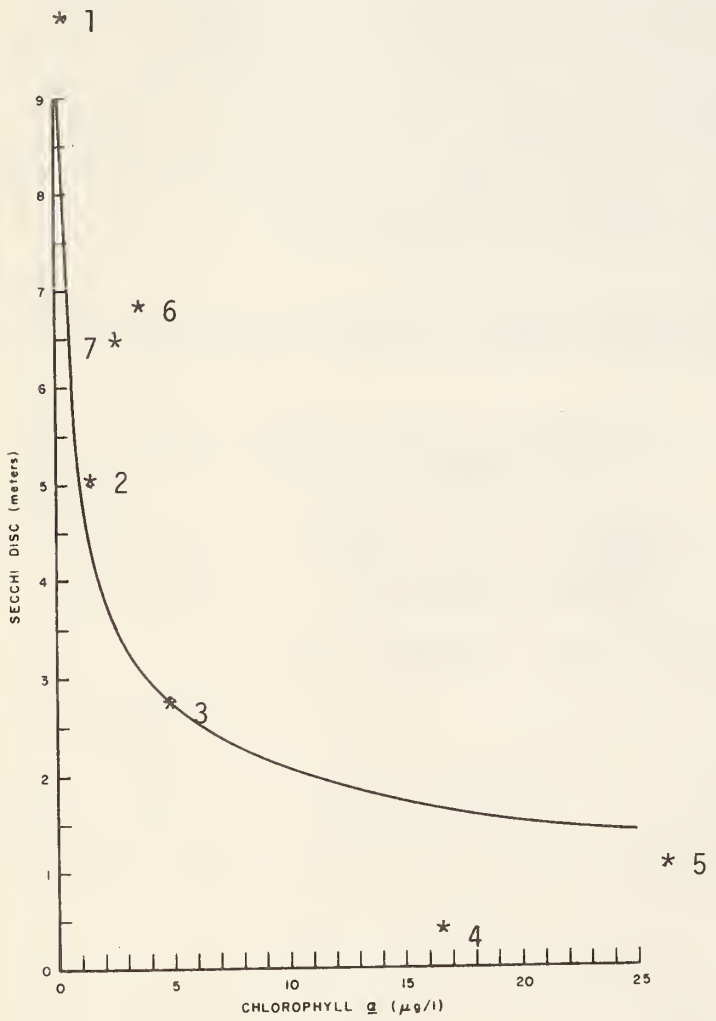
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
Aug. 2	7.9	2.1						
8	6.1	2.8						
15	6.4	1.6						
21	7.0	2.1						
29	5.8	3.2						
Sept. 4	6.3	2.6						
Mean	6.6	2.4						

The maximum Secchi disc reading, recorded August 29, corresponded to the maximum chlorophyll a concentration, measured during the sampling period. No trends are apparent in the variations of either the Secchi disc readings or chlorophyll a concentrations. Based on the season means for the two parameters measured, Horseshoe Lake would be considered unenriched, characterized by a very high degree of water transparency and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Horseshoe Lake from 1973 to 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	5.3	2.3						
1974	4.6	0.9						
1975	6.8	3.7						
1976	6.6	2.4						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Horseshoe Lake - 1974
7. HORSESHOE LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Horseshoe Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation and do not appear to represent a change in water quality. Continuation of this program is required to establish any long term trends in lake quality.

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Ontario

Ministry of the Environment

JACK LAKE

Burleigh & Methuen Twps., Peterborough County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

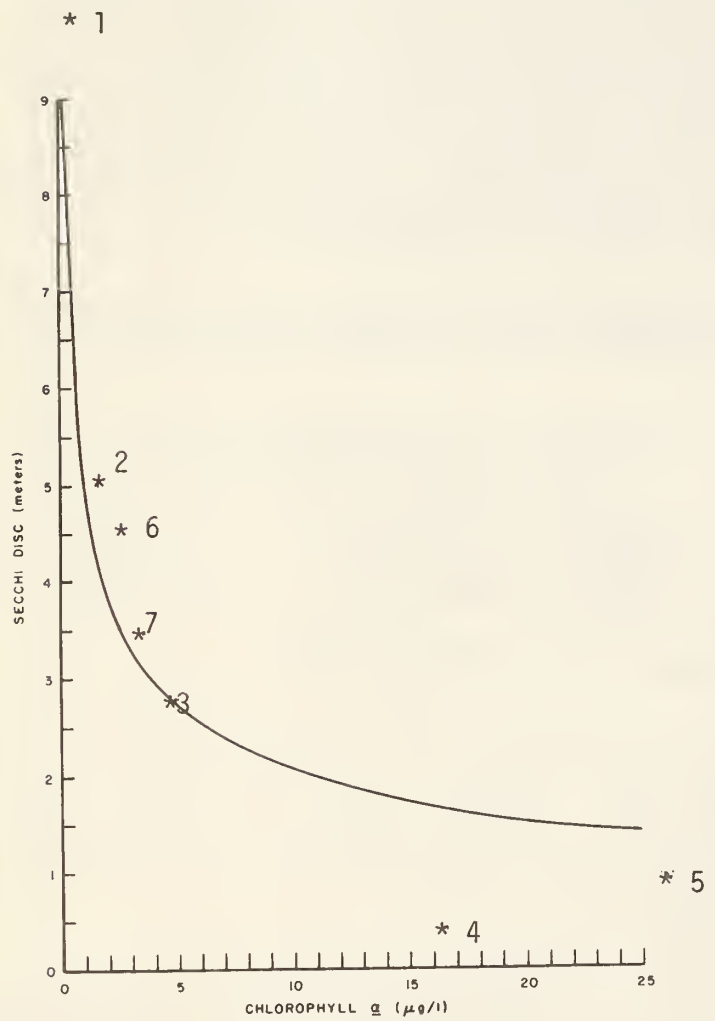
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (Sharp's B) S.D.	Chloro. a	Stn. S.D.	Brook's Bay Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 6	5.2	4.4	3.4	3.8				
30	4.0	3.5	2.1	3.8				
June 13	4.3	3.9	3.1	4.8				
20	5.2	3.9	-	-				
27	5.5	1.6	3.4	5.5				
July 4	5.9	4.0	3.4	4.8				
11	4.3	2.7	2.4	2.2				
18	4.0	3.1	3.4	4.4				
25	6.4	2.5	4.0	3.2				
Aug. 2	4.3	2.4	4.0	3.9				
9	4.0	2.5	4.0	4.3				
15	3.7	2.3	4.0	3.4				
22	4.3	2.7	4.0	4.9				
29	-	-	4.0	3.5				
Sept. 6	4.0	1.9	4.0	3.5				
12	3.7	2.7	3.4	2.6				
19	3.7	1.9	3.1	2.9				
26	3.7	3.1	3.1	3.1				
Oct. 3	4.6	3.8	3.5	2.3				
11	4.6	2.1	3.1	4.1				
Mean	4.5	2.9	3.4	3.7				

Both the Secchi disc readings and chlorophyll a concentrations varied considerably during the sampling period, but no trends are apparent. The poorest water transparency in Sharp's Bay was recorded in September; in Brook's Bay it occurred in May. Based on the seasonal means for the two parameters measured, both Bays would be considered moderately enriched, though Brook's Bay is more enriched than Sharp's Bay.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Jack Lake from 1971 to 1976

Year	Stn. S.D.	Sharp's Bay Chloro. a	Stn. S.D.	Brook's Bay Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971			3.9	2.6				
1972								
1973								
1974	4.4	1.4	3.4	1.9				
1975								
1976	4.5	2.9	3.4	3.7				
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. SHARP'S BAY - JACK LAKE - 1976
7. BROOK'S BAY - JACK LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Jack Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the three years this program has been conducted on Jack Lake, the Secchi disc readings have remained constant, however the 1976 algal densities were twice as great as those measured in 1974. Continued participation in this program is required to determine if the increased algal densities reflect a change in lake quality, or are due to natural fluctuation.

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Ontario

Ministry of the Environment

KASHAGAWIGAMOG LAKE
Dysart & Minden Twps., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

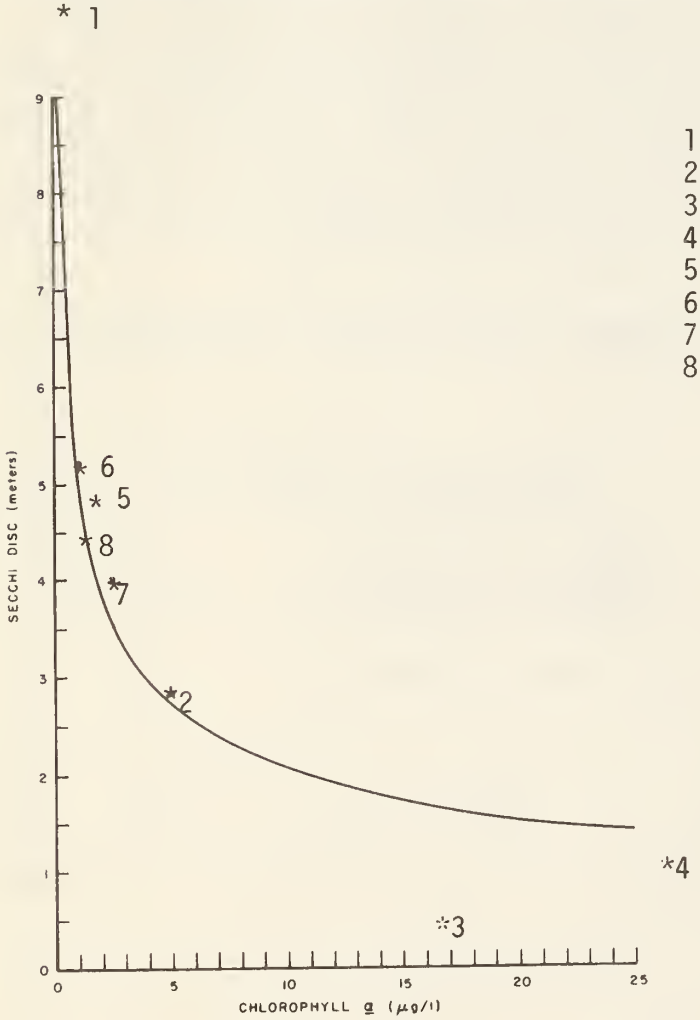
Date	Stn. - Main (North) S.D.	Chloro. a	Stn.- South S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 6	4.0	1.7						
20	4.0	2.4						
July 4	4.0	3.5						
11	4.6	3.7						
18	-	-	4.7	0.6				
Aug. 2	3.7	2.2						
15	3.7	2.3						
22	-	-	4.3	1.9				
Sept. 6	4.0	3.1						
Mean	4.0	2.7	4.5	1.3				

The variations in the Secchi disc readings in N. Kashagawigamog Lake were minimal during the sampling period. The chlorophyll a concentrations increased from the beginning of June to the beginning of August, and then declined. Based on seasonal means for the two parameters measured, N. Kashagawigamog Lake would be considered moderately enriched characterized by a moderate degree of transparency and moderate algal densities. Insufficient data was collected from S. Kashagawigamog Lake to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Kashagawigamog Lake from 1972 to 1976

Year	Stn. - North S.D.	Chloro. a	Stn. - South S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
**1972	4.2	4.7						
1973	4.6	2.0	4.5	1.7				
1974	4.4	1.4	4.6	1.5				
1975	4.9	1.7	5.2	1.1				
1976	4.0	2.7	*4.5	1.3				
"								
"								

* based on two samplings
** average for entire lake



1. Kennisis Lake - 1975
2. Gravenhurst Bay - 1974
3. Lake Scugog - 1972
4. Moira Lake - 1972
5. N. Kashagawigamog Lake - 1975
6. S. Kashagawigamog Lake - 1975
7. N. KASHAGAWIGAMOG LAKE - 1976
8. S. KASHAGAWIGAMOG LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Kashagawigamog Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2, for N. Kashagawigamog Lake are attributable partly to natural annual fluctuation, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality. The inclusion of the S. Kashagawigamog Lake information for 1976 is not entirely justified due to the limited amount of data available; however for comparative purposes, the 1976 position has been indicated.

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Ministry of the Environment

KAWAGAMA LAKE

McClintock, Livingstone, Sherborne & Havelock Twps., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (Loon B.) S.D.	Chloro. a	Stn. Minden B. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 19	6.5	1.6						
25	6.5	1.9						
Aug. 2	5.5	3.7	4.3	2.5				
15	5.3	2.6	5.0	2.6				
Mean	6.0	2.5	4.7	2.5				

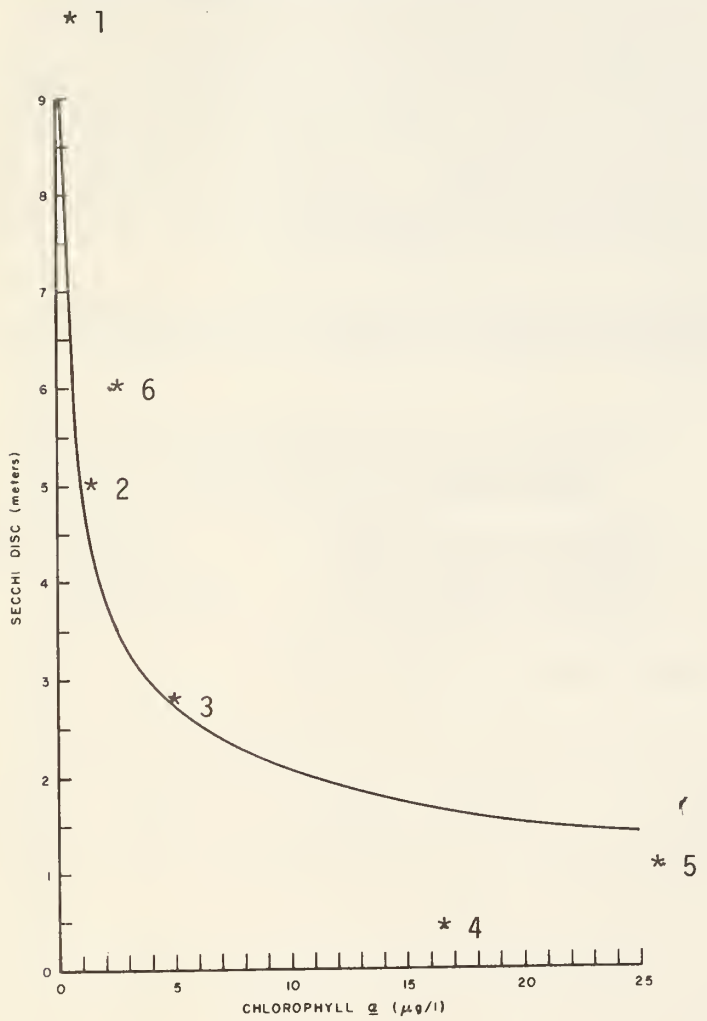
Since samples were collected on only four occasions in Loon Bay and twice from Minden Bay it is difficult to obtain even a reasonably accurate estimate of the trophic status of Kawagama Lake.

Based on the seasonal means for the two parameters measured, Loon Bay would be considered unenriched, characterized by a high degree of water transparency and moderately low algal densities. The available information for Minden Bay is insufficient to make any valid conclusions.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Kawagama Lake in 1976

Year	Stn. S.D.	Loon B. Chloro. a	Stn. S.D.	Minden B. Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975	6.0	2.5	*4.7	2.5				
1976								
"								
"								

* based on 2 sets of data only



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. KAWAGAMA LAKE - LOON BAY - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Kawagama Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The available data indicates that Loon Bay of Kawagama Lake is typical of a Pre-Cambrian Shield Lake. These lakes characteristically have a high degree of water transparency, and support low densities of suspended algae. More frequent sampling is required to accurate determine the trophic status of the Lake.

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Ministry of the Environment

KENNAWAY LAKE
Harcourt Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

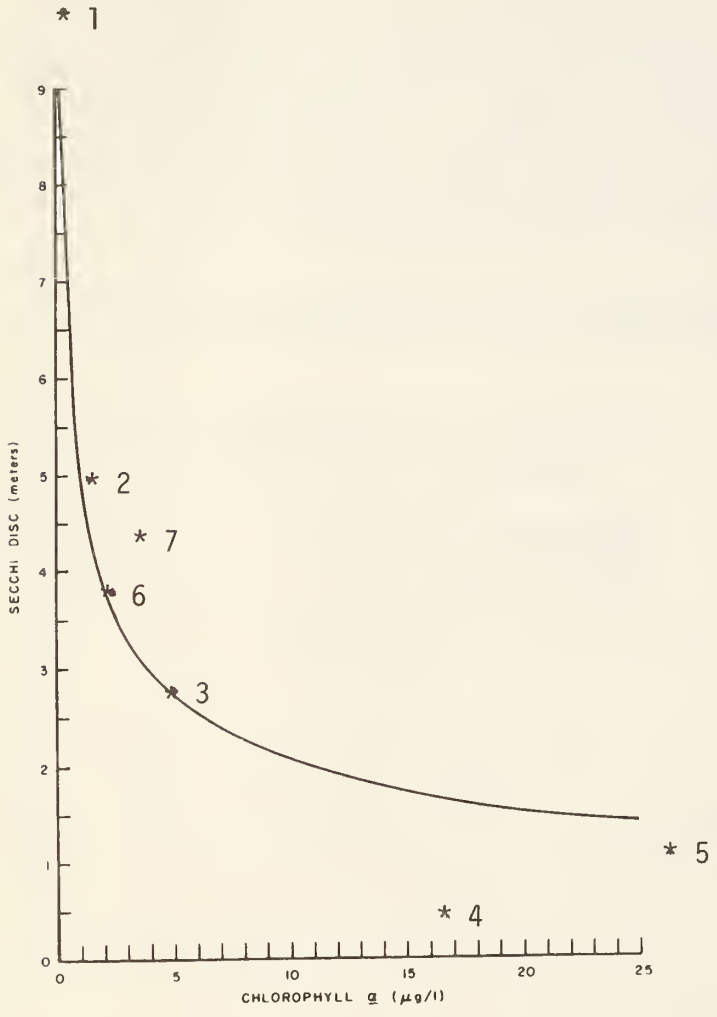
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 4	4.3	3.8						
11	3.8	4.1						
18	4.0	4.8						
25	4.5	1.6						
Aug. 2	4.0	1.7						
22	4.5	5.9						
Sept.6	4.0	4.8						
Mean	4.2	3.8						

Although the Secchi disc readings exhibited only minor variation over the sampling period, the chlorophyll a concentrations fluctuated considerably. It is unfortunate that sampling was not carried out later in the Fall, to determine if the elevated chlorophyll a concentrations at the end of the sampling period were sustained. Based on the seasonal means for the two parameters measured, Kennaway Lake would be considered moderately enriched, characterized by a moderate degree of transparency and moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Kennaway Lake from 1973 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	4.1	3.3						
1974	3.6	1.9						
1975	3.8	2.7						
1976	4.2	3.8						
=								
=								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Kennaway Lake - 1975
7. KENNAWAY LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Kennaway Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation and do not appear to represent a change in water quality. Continuation of this program is required to establish any long term trends in lake quality.

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Ministry of the
Environment

KENNISIS LAKE
Havelock & Guilford Twps.,
Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

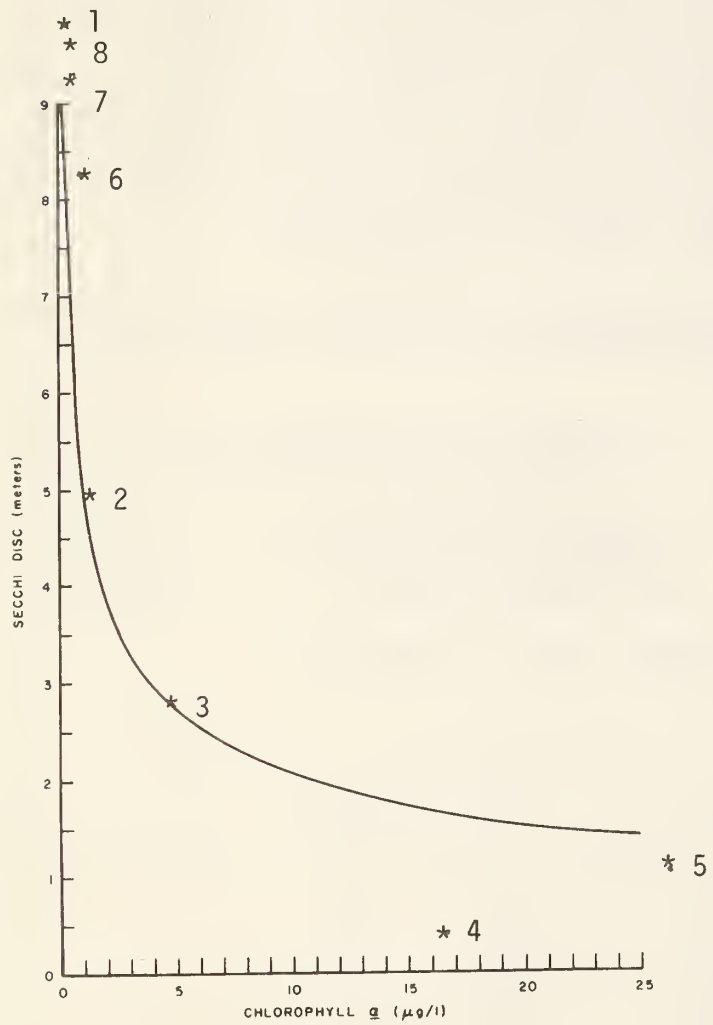
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (A) S.D.	Chloro. a	Stn. - B S.D.	Chloro. a	Stn. - C S.D.	Chloro. a	Stn. D S.D.	Chloro. a
June 20	7.0	0.8	11.0	1.2	11.0	0.8	14.0	0.8
ly 11	7.0	1.9	9.0	1.8	9.0	1.4		
25	9.0	0.6	9.0	0.5	10.0	0.3		
ug. 8	7.0	1.4	7.0	1.3	7.5	1.1		
22	9.0	1.8	10.0	1.4	10.0	1.5		
pt. 6	10.0	1.9	10.0	2.3	10.0	2.0		
lean	8.2	1.4	9.3	1.4	9.6	1.2		

ly minor variations in water quality exists between Stns. A, B & D. The data is nsufficient to comment on Stn. D. Commencing the end of July, the chlorophyll a concentration creased at the three stations over the remainder of the sampling period. No trend was parent in the Secchi disc readings. The three stations were characterized by a very igh degree of water transparency and low algal densities, reflecting the unenriched ature of Kennisis Lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Kennisis Lake from 1972 to 1976

Year	Stn. - A S.D.	Chloro. a	Stn. - B S.D.	Chloro. a	Stn.- C S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	6.7	1.0	9.0	0.9	8.8	0.9		
1973	7.8	0.7	9.5	0.8	9.5	0.8		
1974	7.7	0.8	8.6	0.5	8.6	0.4		
1975	9.5	1.0	10.0	0.6	10.5	0.8		
1976	8.2	1.4	9.3	1.4	9.6	1.2		
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. KENNISIS LAKE - STN. A - 1976
7. KENNISIS LAKE - STN. B - 1976
8. KENNISIS LAKE - STN. C - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Kennisis Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long term trends in lake quality.

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Ontario

Ministry of the Environment

KOSHLONG LAKE
Glamorgan Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

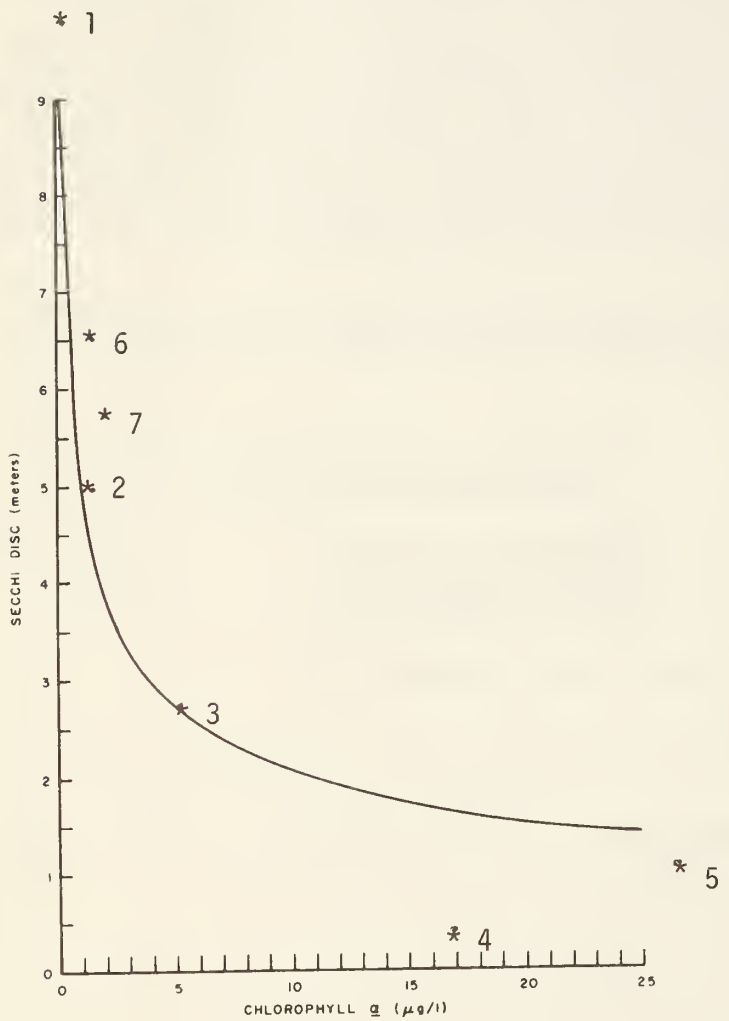
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
July 2	5.2	2.1						
25	6.3	2.4						
Mean	5.7	2.2						

Insufficient data was collected to allow a meaninful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Koshlong Lake from 1973 to 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	5.7	2.0						
1974	5.4	1.3						
1975	6.5	1.9						
1976	5.7	2.2						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Koshlong Lake - 1975
7. KOSHLONG LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Koshlong Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The inclusion of the Koshlong Lake information for 1976 is not entirely justified due to the limited amount of data available; however for comparative purposes, the 1976 position has been indicated. The frequency of sampling must be increased if sufficient data, for comparative purposes is to be obtained.

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Ontario

Ministry of the
Environment

LAKE JOSEPH
Twp. of Muskoka Lakes, District
Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

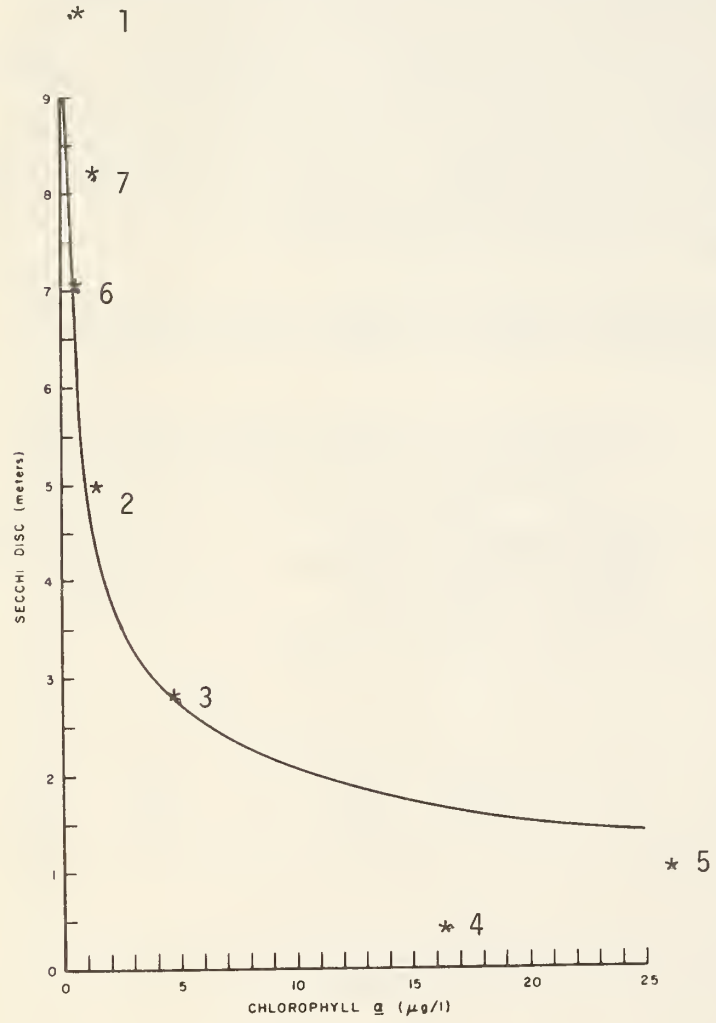
Date	Stn. - Main (J 7) S.D.	Chloro. a	Stn.- J 8 S.D.	Chloro. a	Stn.- J 9 S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 18	8.0	1.8	5.5	2.0	-	-		
Aug. 2	7.5	1.4	6.0	2.7	-	-		
23	9.0	1.0	7.2	1.8	8.0	1.8		
Mean	8.2	1.4	6.2	2.2				

Since samples were collected on only three occasions from Stns. J 7 and J 8, it is difficult to obtain even a reasonably accurate estimate of the Lake's trophic status in the vicinity of these stations. Based on seasonal means for the two parameters measured, Stn. J7 would be considered unenriched, characterized by a very high degree of water transparency and low algal densities. Stn. J 8 is also unenriched, though the degree of transparency is less than Stn. J 7, and the algal densities are greater.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Joseph in 1970, 1974 and 1976

Year	Stn. - J 7 S.D.	Chloro. a	Stn. - J 8 S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
*1970	8.1	1.0	5.8	2.5				
1971								
1972								
1973								
1974	7.0	0.5						
1975								
1976	8.2	1.4	6.2	2.2				
"								
"								

* M.O.E. Data



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. LAKE JOSEPH - J 7 - 1976
7. LAKE JOSEPH - J 8 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Joseph and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long term trends in lake quality.

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Ontario

LAKE ROSSEAU
Twp. of Muskoka Lakes, District
Municipality of Muskoka

Ministry of the
Environment

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

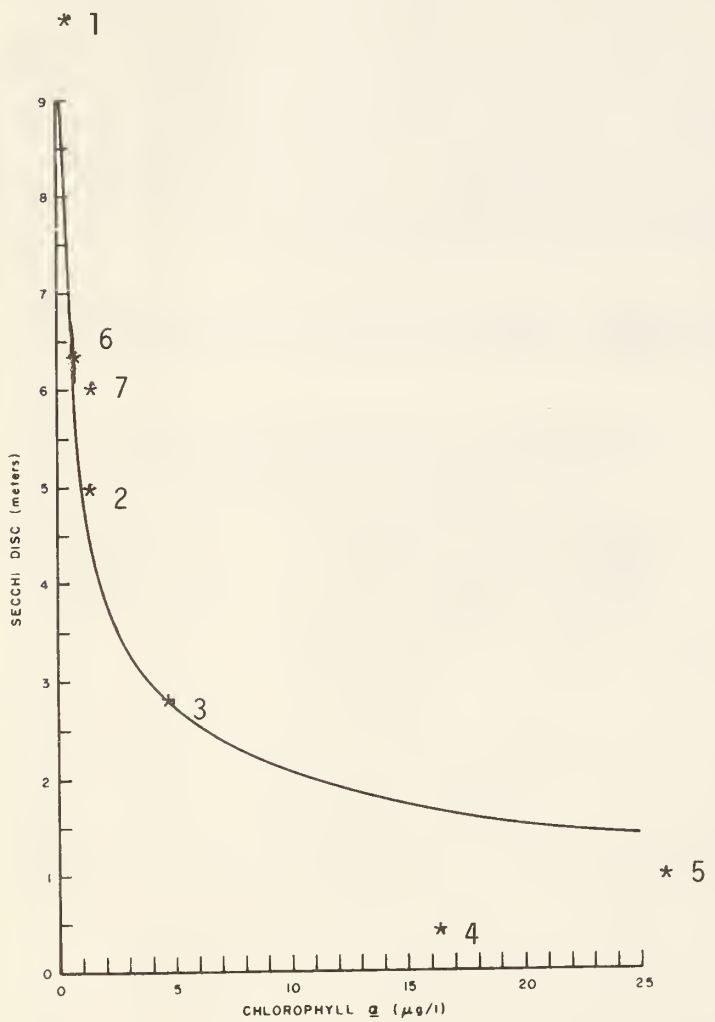
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (R-5) S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
Aug. 2	6.1	1.8						

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Rosseau in 1970, 1974, and 1976

Year	Stn. - R 5 S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1970	6.3	1.7						
1971								
1972								
1973								
1974	6.4	0.7						
1975								
1976	6.1	1.8						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Lake Rosseau - R 5 - 1974
7. LAKE ROSSEAU - R 5 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Rosseau and a number of other well-known recreational lakes in the province. All data are seasonal means.

The inclusion of the Lake Rosseau information for 1976 is not entirely justified due to the limited amount of data available; however for comparative purposes the 1976 position has been indicated.

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Ontario

LAKE VERNON

Town of Huntsville, District Municipality of Muskoka

Ministry of the Environment

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

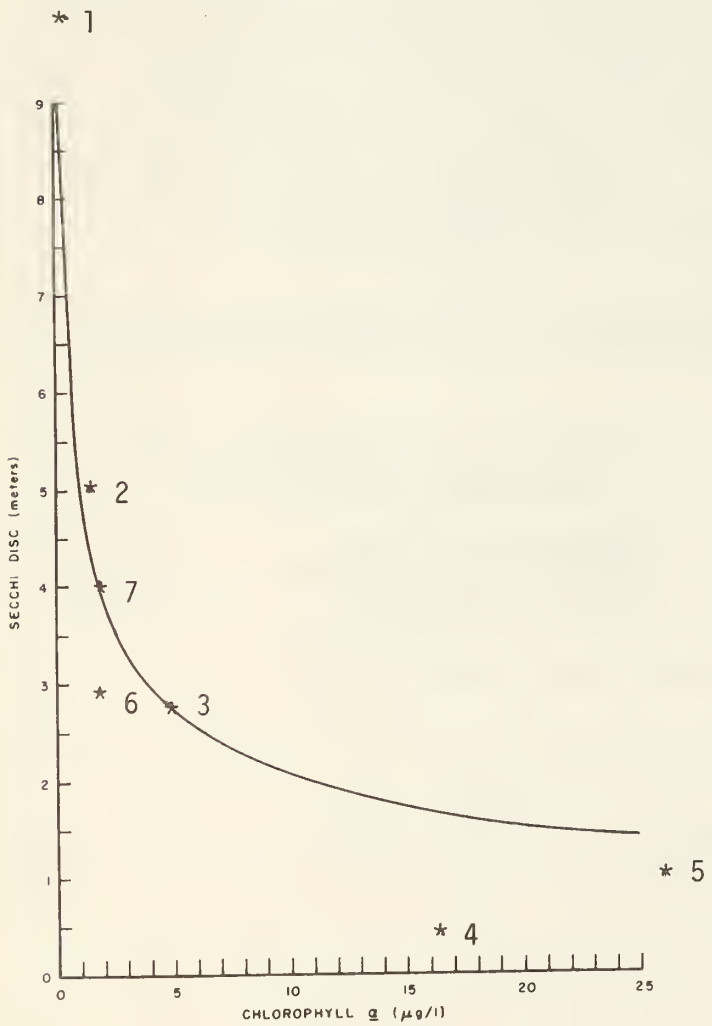
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 14	3.9	1.4						
27	4.3	2.2						
July 11	3.8	1.9						
25	3.3	2.7						
Aug. 8	3.7	0.8						
24	4.9	1.0						
Mean	4.0	1.7						

The minimum Secchi disc reading of 3.3 m recorded on July 25, corresponded to the maximum chlorophyll a concentration measured during the sampling period. Although variations occurred in both the Secchi disc readings and chlorophyll a concentrations during the sampling period, no trend is apparent. Based on the seasonal means for the two parameters measured, Lake Vernon would be considered moderately enriched, characterized by a moderate degree of water transparency and relatively low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Vernon from 1974 to 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
*1974	4.0	0.7						
1975	2.9	1.8						
1976	4.0	1.7						
"								
"								

* based on one sampling only



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Lake Vernon - 1975
7. LAKE VERNON - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Vernon and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable aprtly to natural annual fluctuations and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ministry of the Environment

LAKE WASEOSA

Town of Huntsville, District Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

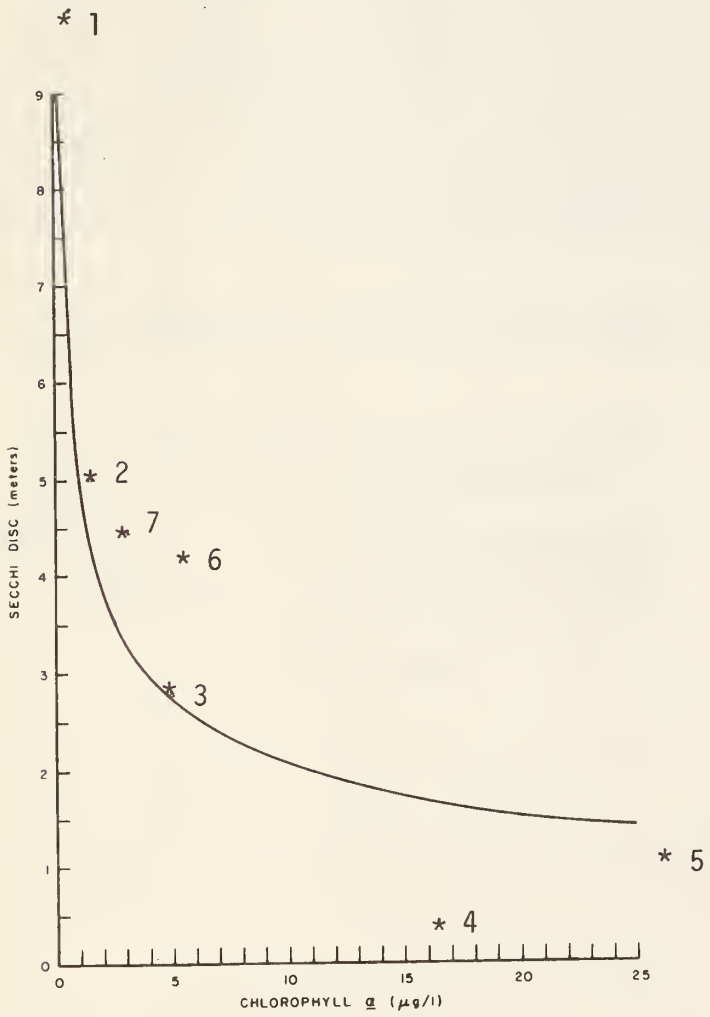
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 12	3.8	4.8						
25	4.5	4.7						
Aug. 8	5.3	0.9						
22	5.5	2.9						
Sept.12	4.0	2.8						
26	3.5	2.0						
Mean	4.4	3.0						

An improvement was noted in the Secchi disc readings from the commencement of sampling till August 22. The readings then declined till the end of the sampling period. The highest chlorophyll a concentrations were measured during July. Based on the seasonal means for the two parameters measured, Lake Waseosa would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Waseosa from 1974 to 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974	4.2	2.8						
1975	4.1	5.2						
1976	4.4	3.0						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Lake Waseosa - 1975
7. LAKE WASEOSA - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Waseosa and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the three years of sampling, the Secchi disc readings have remained relatively constant, whereas considerable variation has occurred in the algal densities. Continued participation in this program is required to determine any long term trends in lake quality.

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LEONARD LAKE
Twp. of Muskoka Lakes,
District Municipality of Muskoka

Ministry of the
Environment

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 6	6.5	1.7						

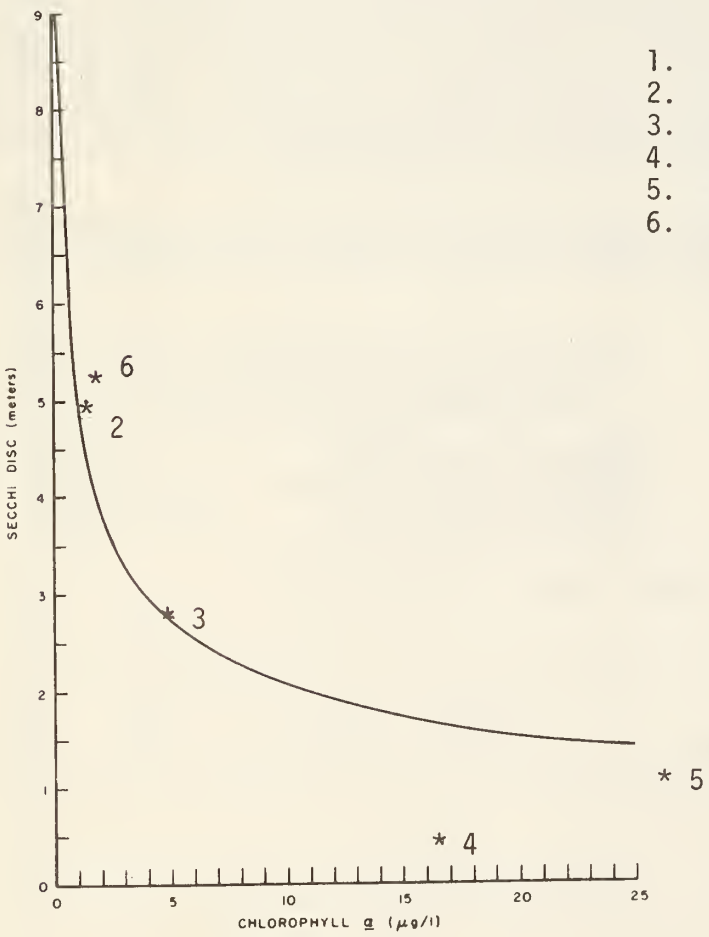
Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Leonard Lake in 1971, 1975 and 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
* 1971	5.3	1.8						
1972								
1973								
1974								
1975	5.3	1.5						
** 1976	6.5	1.7						
"								
"								

* M.O.E. data
** based on one sampling

* 1



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. LEONARD LAKE - 1975

Figure 1: The relationship between Secchi disc and chlorophyll a for Leonard Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

More frequent sampling is required, if meaningful data is to be obtained, to monitor yearly variations in the quality of Leonard Lake.

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Ontario

Ministry of the Environment

LITTLE KENNISIS LAKE
Havelock Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

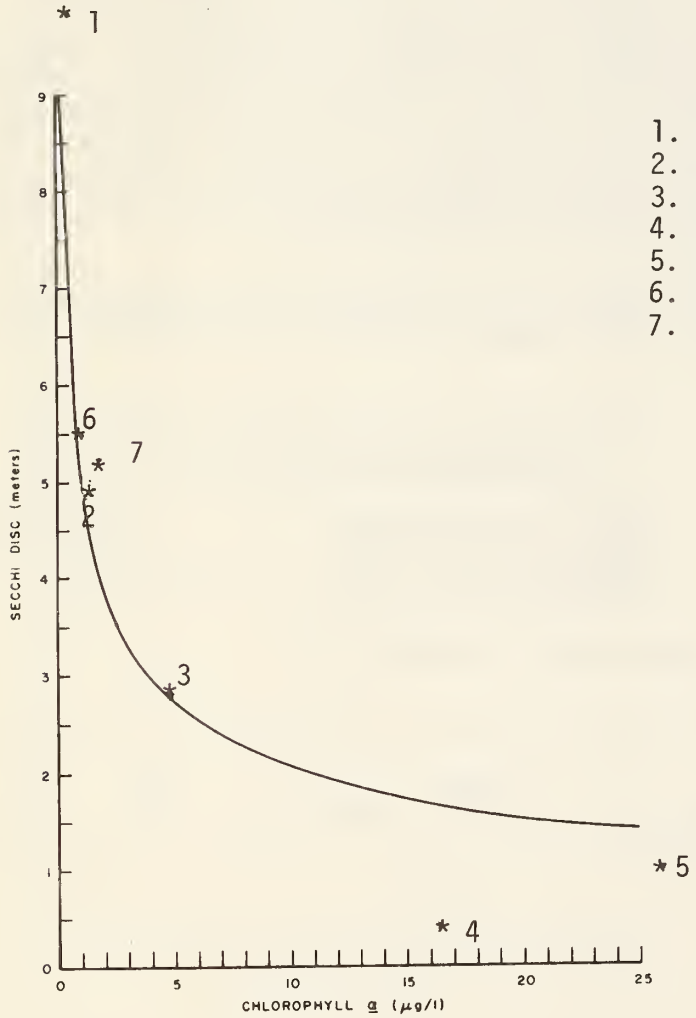
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
July 11	4.5	1.2						
25	5.5	0.9						
Aug. 8	5.5	1.6						
22	-	2.7						
Sept. 6	5.5	3.6						
Mean	5.3	2.0						

Whereas the Secchi disc readings remained constant during the sampling period, the chlorophyll a concentrations progressively increased. It is unfortunate that sampling was not continued during the fall to see if this trend continued. Based on the seasonal means for the two parameters measured, Little Kennisis Lake would be considered unenriched, characterized by a high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Little Kennisis Lake from 1972 to 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	4.4	1.6						
1973	4.8	1.1						
1974	5.3	1.1						
1975	5.5	1.0						
1976	5.3	2.0						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Little Kennisis Lake - 1975
7. LITTLE KENNISIS LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Kennisis Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ministry of the
Environment

LITTLE STRAGGLE LAKE
Harcourt Twp., Provisional County
of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

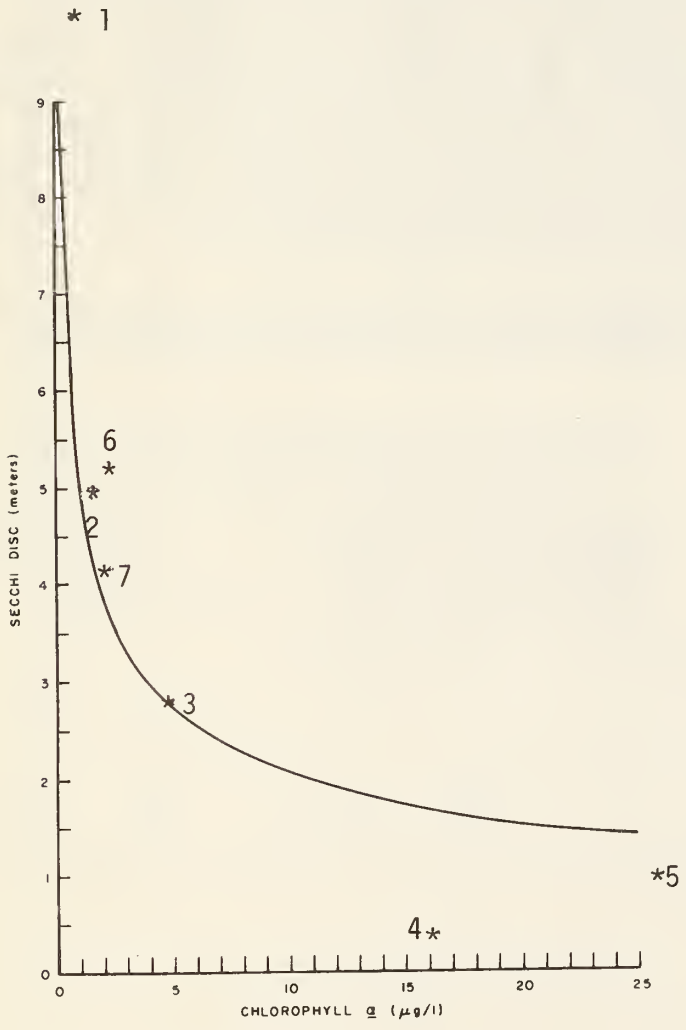
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
July 4	4.0	2.4						
11	3.5	1.8						
18	4.0	2.0						
25	5.0	5.5						
Aug. 1	4.0	1.3						
22	4.0	0.8						
29	4.0	1.7						
Mean	4.1	2.2						

Both the Secchi disc readings and chlorophyll a concentrations remained relatively uniform throughout the sampling period. The only exception was the high algal density recorded July 25. Based on seasonal means for the two parameters measured Little Straggle Lake would be considered moderately enriched, characterized by a relatively high degree of water transparency and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Little Straggle Lake from 1973 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	3.8	2.9						
1974	3.6	1.6						
1975	5.3	2.4						
1976	4.1	2.2						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Little Straggle Lake - 1975
7. LITTLE STRAGGLE LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Straggle Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

Ministry of the Environment

LONG LAKE
Twp. of Muskoka Lakes, District
Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

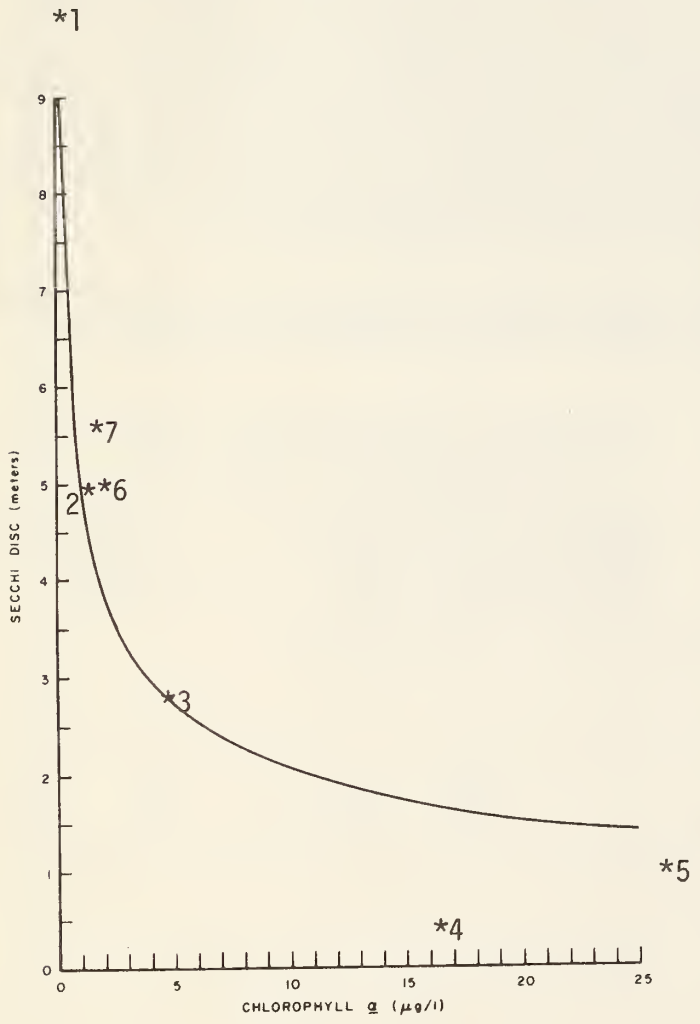
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
May 24	3.8	1.2						
30	5.0	0.7						
June 12	5.5	1.4						
27	6.0	3.0						
July 10	5.0	2.3						
25	5.5	2.3						
Aug 8	5.5	1.8						
21	6.5	2.3						
Sept 6	5.5	2.3						
Mean	5.5	1.9						

Although both the Secchi disc readings and chlorophyll a concentrations varied during the sampling period, no trends are apparent. Based on the seasonal means for the two parameters measured, Long Lake would be considered unenriched, characterized by a high degree of transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake in 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	5.5	1.9						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Gull Lake
7. LONG LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Long Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of Long Lake is comparable to that of Gull Lake, Gravenhurst, and Kashagawigamog Lake as shown on the above graph. Continued participation in this program is required to monitor any long term trends in the quality of Long Lake.

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Ontario

Ministry of the Environment

LONG LAKE
Monmouth Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

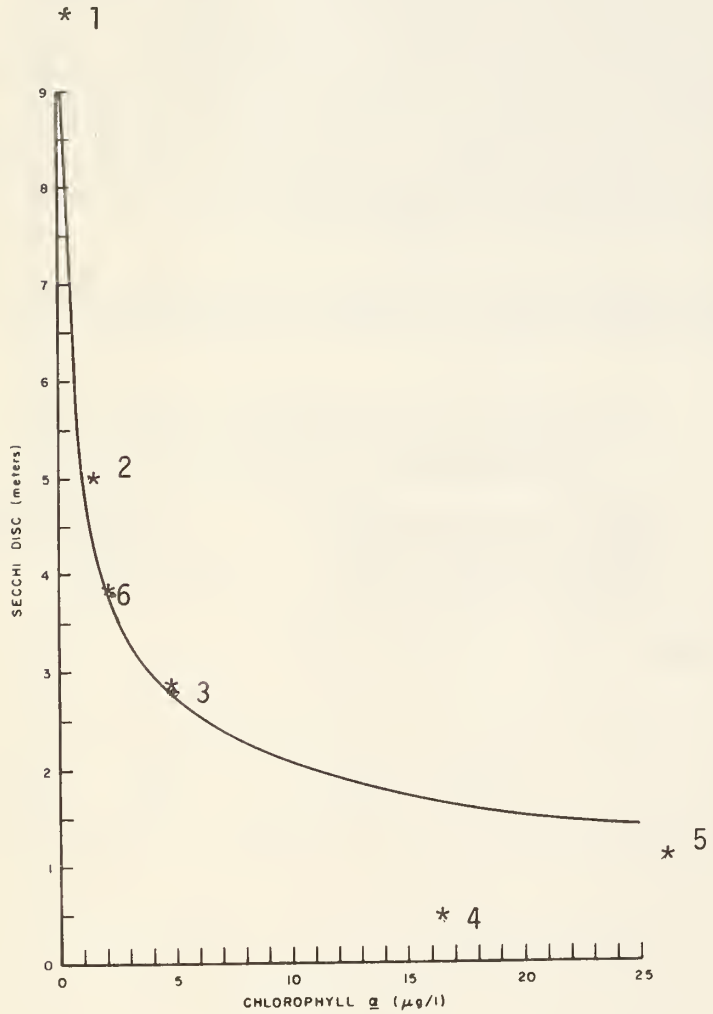
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
July 11	4.0	1.8						
18	4.3	2.8						
24	3.8	1.6						
Aug 2	3.5	1.6						
8	3.5	2.2						
15	4.0	2.3						
29	3.5	3.2						
Sept 6	3.5	2.5						
Mean	3.8	2.3						

Although variations occurred in both the Secchi disc readings and chlorophyll a concentrations, no trends became apparent during the sampling period. Based on the seasonal means for the two parameters measured Long Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake in 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	3.8	2.3						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. LONG LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Long Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph indicates that Long Lake is more enriched than Kashagawigamog Lake, though is considerably removed from such highly enriched water bodies as Moira Lake and Lake Scugog. Continued participation in this program is required to monitor any long term trends in the quality of Long Lake.

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Ontario

Ministry of the Environment

LOON LAKE

Town of Gravenhurst, District Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

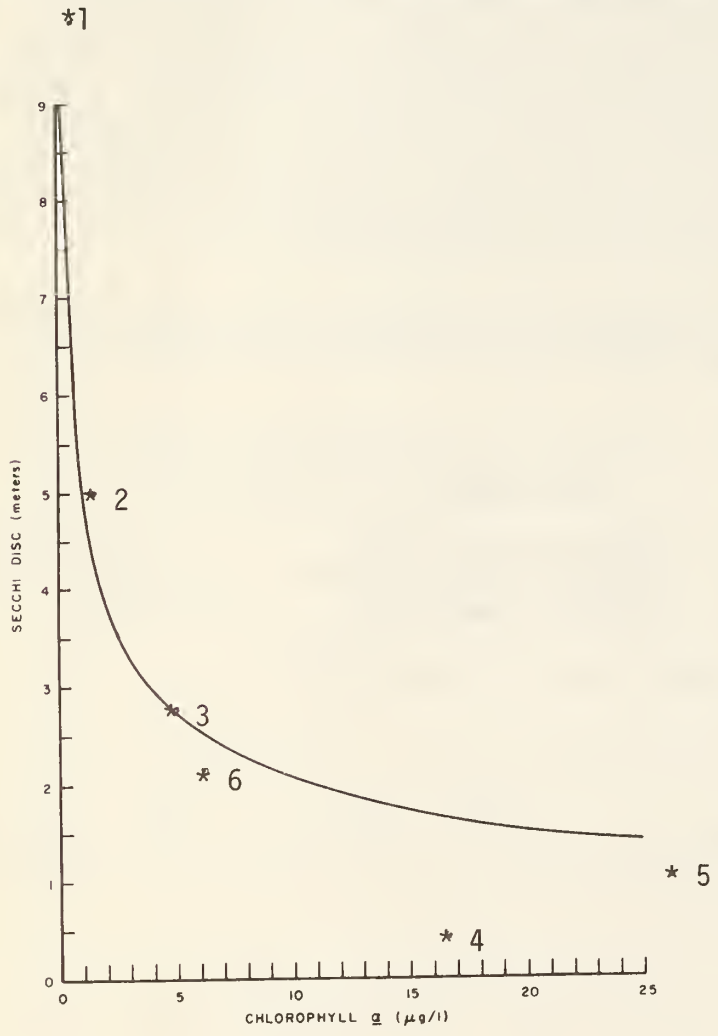
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 12	3.6	2.3						
20	2.1	7.3						
27	2.4	5.7						
July 4	2.0	6.6						
18	1.8	4.5						
25	2.3	5.4						
Aug. 8	1.8	9.3						
Sept. 6	1.8	7.8						
12	1.5	8.1						
Mean	2.1	6.3						

Secchi disc readings were greatest in June, and then declined to a low of 1.5 m. on September 12. The chlorophyll a concentrations varied considerably, with the highest concentrations occurring during the latter portion of the sampling period. Based on seasonal means for the two parameters measured, Loon Lake would be considered enriched, characterized by a low degree of water transparency and high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Loon Lake in 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	2.1	6.3						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. LOON LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Loon Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of Loon Lake is comparable, through slightly more enriched than Gravenhurst Bay. It is still considerably removed from such highly enriched water bodies as Moire Lake and Lake Scugog. Continued participation in this program is required to monitor any long term trends in the quality of Loon Lake.

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Ontario

Ministry of the
Environment

LOONCALL LAKE
Burleigh Twp., Peterborough County

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

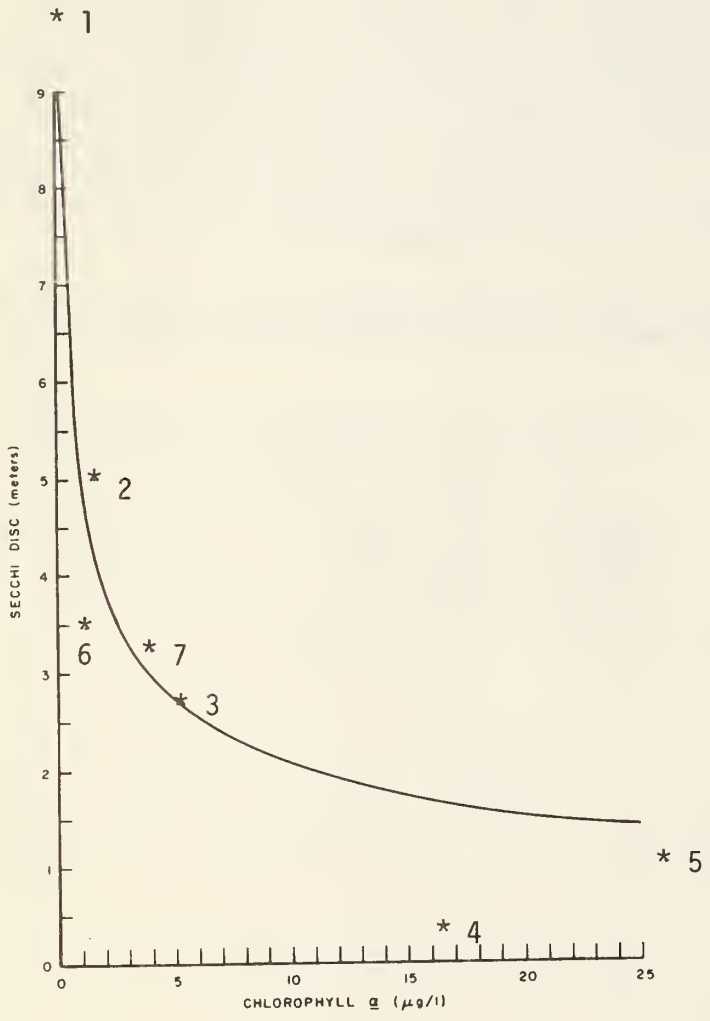
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 6	3.5	7.0						
20	2.8	6.1						
27	2.8	6.8						
July 2	2.5	5.2						
11	3.0	5.0						
18	2.8	3.1						
26	3.5	3.1						
Aug. 2	3.0	4.6						
9	3.0	2.0						
22	3.8	1.7						
29	3.3	2.0						
Sept. 6	4.0	1.9						
12	4.0	1.8						
Mean	3.2	3.9						

The Secchi disc readings varied from 4.0 to 2.8 m, whereas chlorophyll a concentrations varied from 1.7 to 7.0 ug/l during the sampling period. No trend is evident in the variations experienced by either parameter. Based on seasonal means for the two parameters measured, Looncall Lake would be considered moderately enriched, characterized by a moderate degree of transparency and moderately high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Looncall Lake from 1971 to 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971	4.5	1.5						
1972								
1973								
1974	3.4	1.6						
1975	3.5	1.6						
1976	3.2	3.9						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Looncall Lake - 1975
7. LOONCALL LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Looncall Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the last three years of sampling, the Secchi disc readings have remained relatively constant, whereas the chlorophyll a concentration increased significantly in 1976. Continued participation in the program is required to determine if this will be a continuing trend.

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Ministry of the Environment

MAPLE LAKE
Stanhope Twp., Provisional
County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

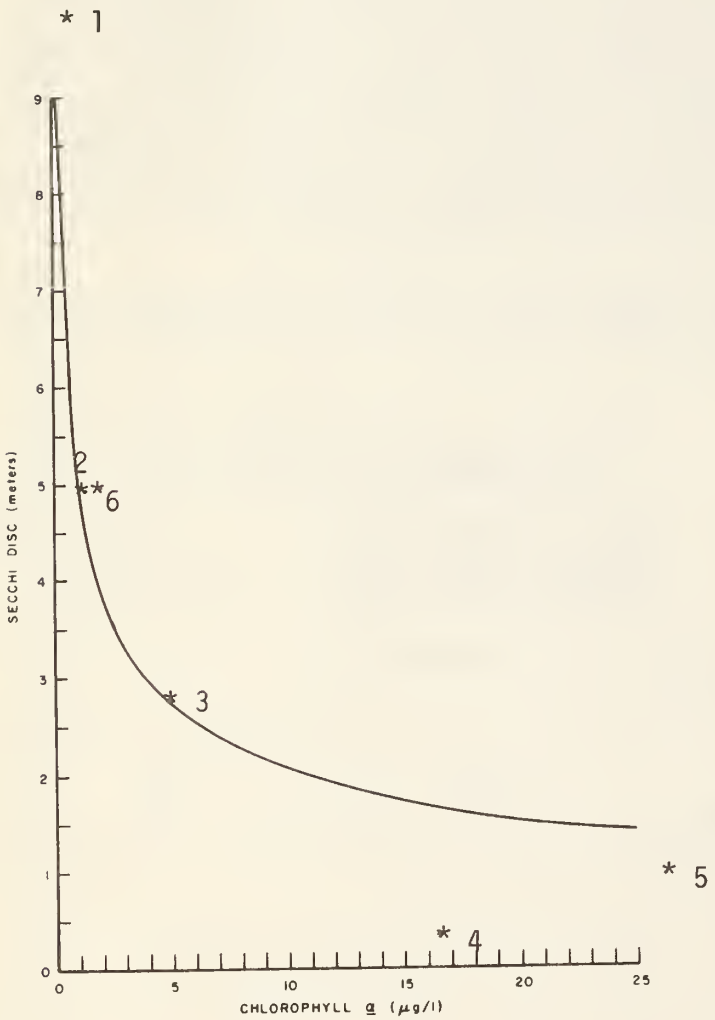
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 21	-	1.4						
Aug. 22	5.0	1.4						
22	5.0	2.1						
22	5.0	1.5						
22	5.2	1.5						
29	4.7	3.5						
29	5.0	2.3						
29	6.0	2.3						
29	4.7	2.7						
Sept. 6	4.5	1.9						
6	4.5	2.0						
Mean	5.0	2.1						

Since samples were not identified, as to the location they were collected from, it was not possible to separate the data. Based on the available information, Maple Lake would be considered unenriched characterized by a high degree of water transparency, and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Maple Lake in 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	5.0	2.1						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. MAPLE LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Maple Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of Maple Lake is comparable to Kashagawigamog Lake, and is far removed from such highly enriched water bodies as Moira Lake and Lake Scugog. Continued participation in this program is required to monitor any long term trends in lake quality.

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Ontario

MARY LAKE
Town of Huntsville, District
Municipality of Muskoka

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

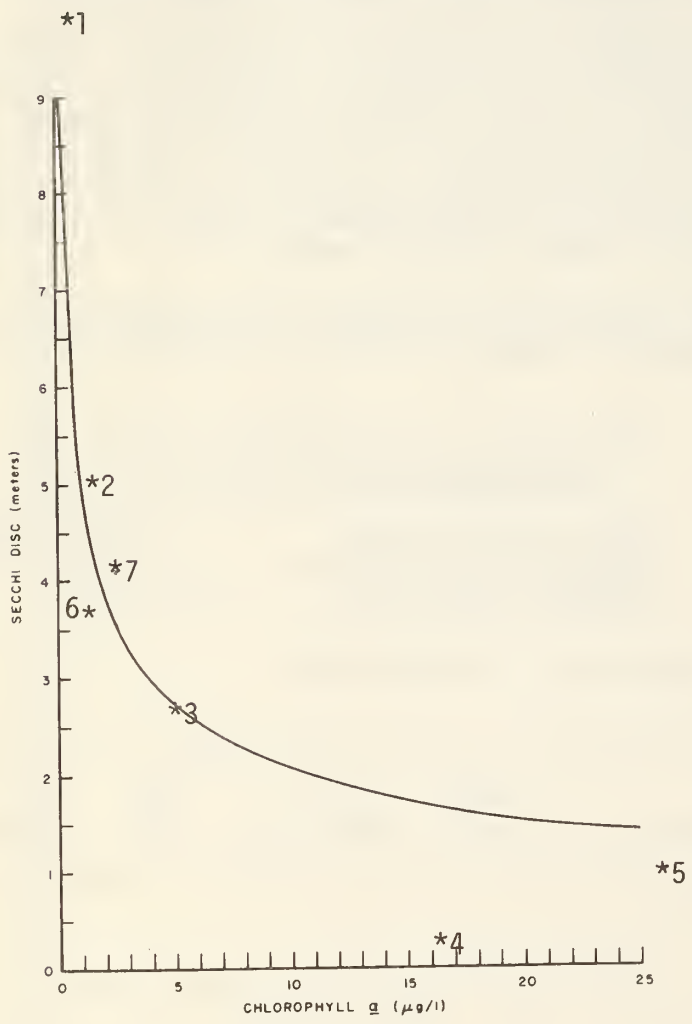
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 13	4.0	2.3						
Jul 12	4.0	3.5						
26	4.0	2.7						
Aug 9	4.0	1.7						
13	4.0	1.8						
Sep 13	5.0	2.8						
27	4.0	1.6						
lean	4.1	2.3						

ecchi disc readings remained constant during the sampling period, whereas the chlorophyll a oncentrations varied from 1.6 to 3.5 ug/l. No trend is evident in the chlorophyll a ariations. Based on the seasonal means for the two parameters measured, Mary Lake would e considered moderately enriched, characterized by a moderate degree of water transparency nd moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Mary Lake from 1974 to 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
* 1974	4.5	1.7						
1975	3.8	1.7						
1976	4.1	2.3						
"								
"								

* based on one set of data only



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Mary Lake - 1975
7. MARY LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Mary Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

METHUEN LAKE

Methuen Twp., Peterborough County

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

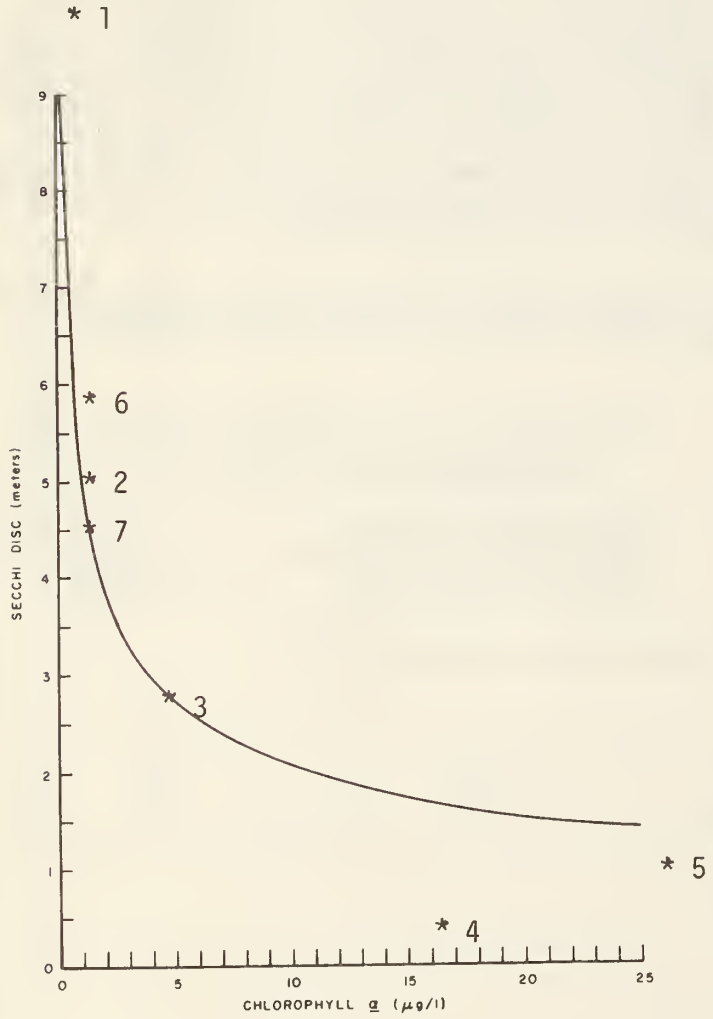
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 25	4.3	2.5						
Aug. 2	4.6	1.9						
22	4.6	2.1						
Sept. 6	4.4	1.7						
19	4.9	1.1						
Oct. 3	4.4	1.2						
Mean	4.5	1.8						

The Secchi disc readings remained relatively constant during the sampling period, whereas the chlorophyll a concentrations exhibited a declining trend. Based on seasonal means for the two parameters measured, Methuen Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Methuen Lake from 1974 to 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974	5.4	1.9						
* 1975	5.9	1.8						
1976	4.5	1.8						
"								
"								

* based on 2 sets of data only



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Methuen Lake - 1975
7. METHUEN LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Methuen Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the three years of sampling, the chlorophyll a concentrations have remained constant, whereas, the Secchi disc readings decreased significantly in 1976. Continued participation in the program is required to determine if this indicates a change in lake quality or is due to natural variation.

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Ontario

MISKWABI LAKE

Dudley Twp., Provisional County of Haliburton

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

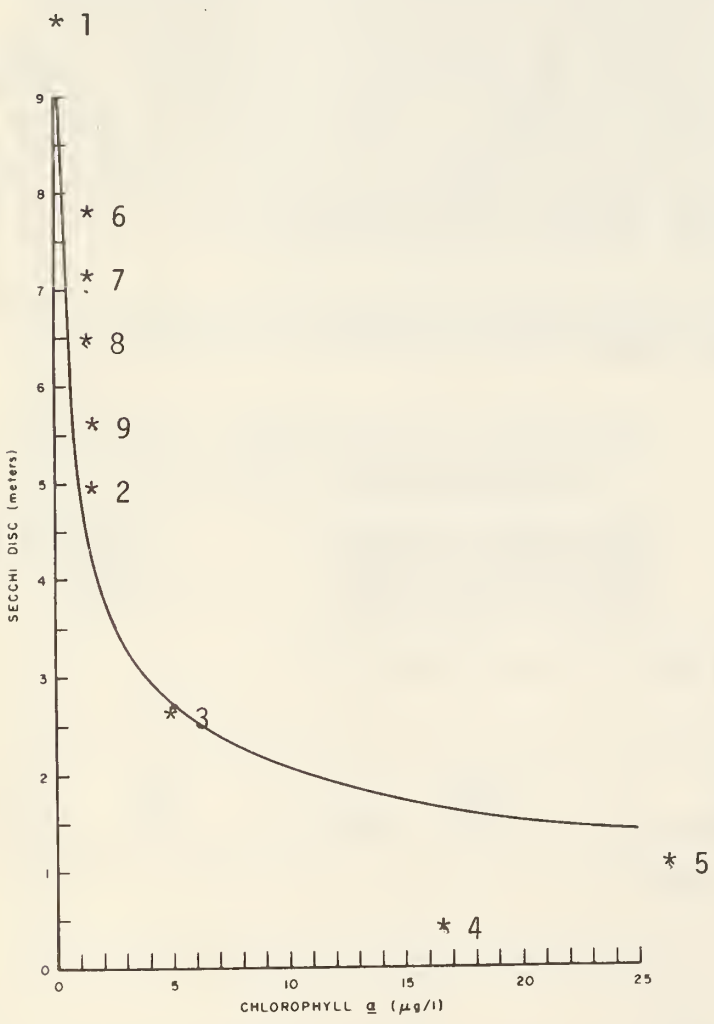
Date	Stn. - Main (6) S.D.	Chloro. a	Stn. - 13 S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	-	-	3.8	3.7				
30	4.8	1.1	-	-				
June 6	-	-	6.8	1.5				
13	7.5	1.7	-	-				
20	7.5	1.4	6.5	1.8				
27	6.6	1.4	5.0	1.5				
July 4		-	5.5	1.4				
11	-	-	5.5	1.8				
25	5.8	1.0	5.5	1.9				
Aug. 2	6.0	2.8	5.0	3.2				
15	-	-	6.0	2.1				
22	6.0	1.9	5.0	1.8				
Sept.6	7.2	1.8	6.5	3.1				
Mean	6.4	1.6	5.6	2.2				

No trend is apparent in the variations experienced by either the Secchi disc readings, or chlorophyll a concentrations during the sampling period. Based on the seasonal means for the two parameters measured, Miskwabi Lake would be considered unenriched, with the bay where Stn. 13 is situated being slightly more enriched than the main body of the lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Miskwabi Lake in 1975 and 1976

Year	Stn. -6 S.D.	Chloro. a	Stn. -13 S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
* 1975	7.7	1.6	7.0	1.6				
1976	6.4	1.6	5.6	2.2				
"								
"								

* MOE data



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Miskwabi Lake - Stn. 6 - 1975
7. Miskwabi Lake - Stn.13 - 1975
8. MISKWABI LAKE - STN. 6 - 1976
9. MISKWABI LAKE - STN.13 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Miskwabi Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

MULDREW LAKE
Town of Gravenhurst, District
Municipality of Muskoka

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

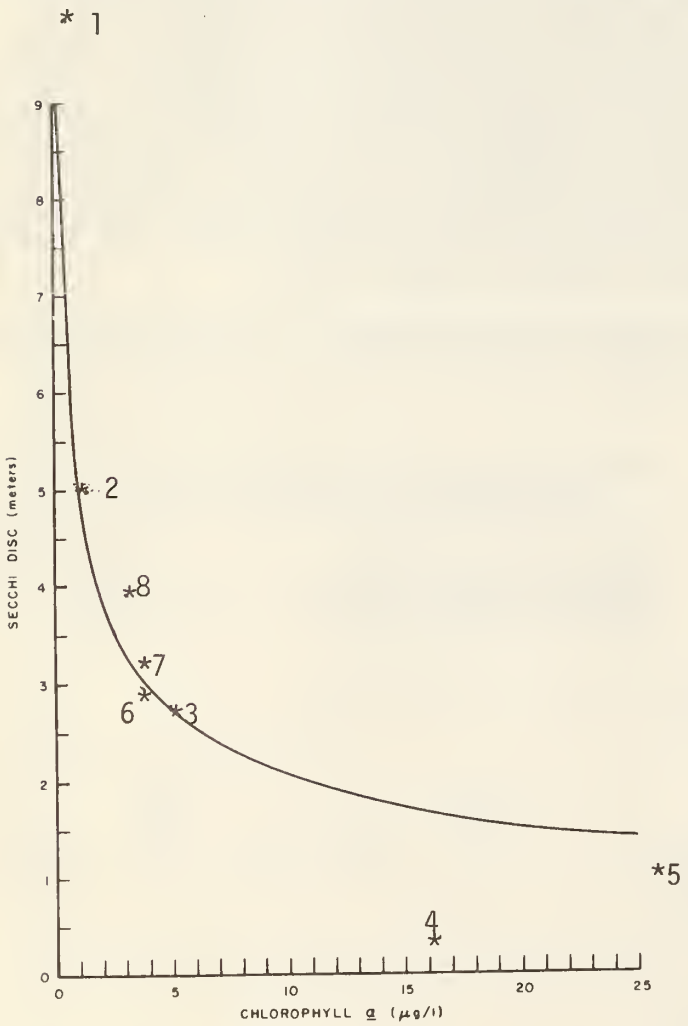
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (Thow) S.D.	Chloro. a	Stn. - Good S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	-	-	3.5	2.2				
30	3.1	2.0	-	-				
June 6	3.3	3.6	6.5	1.9				
13	2.5	2.2	-	-				
30	3.0	3.4	2.5	3.2				
26	3.0	4.2	3.0	2.5				
July 7	3.1	4.9	-	-				
13	2.5	6.9	4.0	4.9				
25	4.0	5.0						
Aug.11	3.5	2.7						
25	4.5	1.2						
Sept.6	4.0	5.3						
Mean	3.3	3.8	3.9	2.9				

Both of the areas samples on Muldrew Lake would be considered moderately enriched based on the seasonal means for the two parameters measured. There is a difference in lake quality between the two stations; the station sampled by Mr. Thow being more enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Muldrew Lake in 1976

Year	Stn. - Thow S.D.	Chloro. a	Stn. - Good S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	3.3	3.8	3.9	2.9				
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Morrison Lake - 1975
7. MULDREW LAKE (Thow) - 1976
8. MULDREW LAKE (Good) - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of Muldrew Lake is comparable to that of Morrison Lake, and it is slightly less enriched than Gravenhurst Bay. Continued participation in this program is required to determine any long term trends in lake quality.

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Ontario

Ministry of the Environment

PAUDASH LAKE

Cardiff Twp., Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

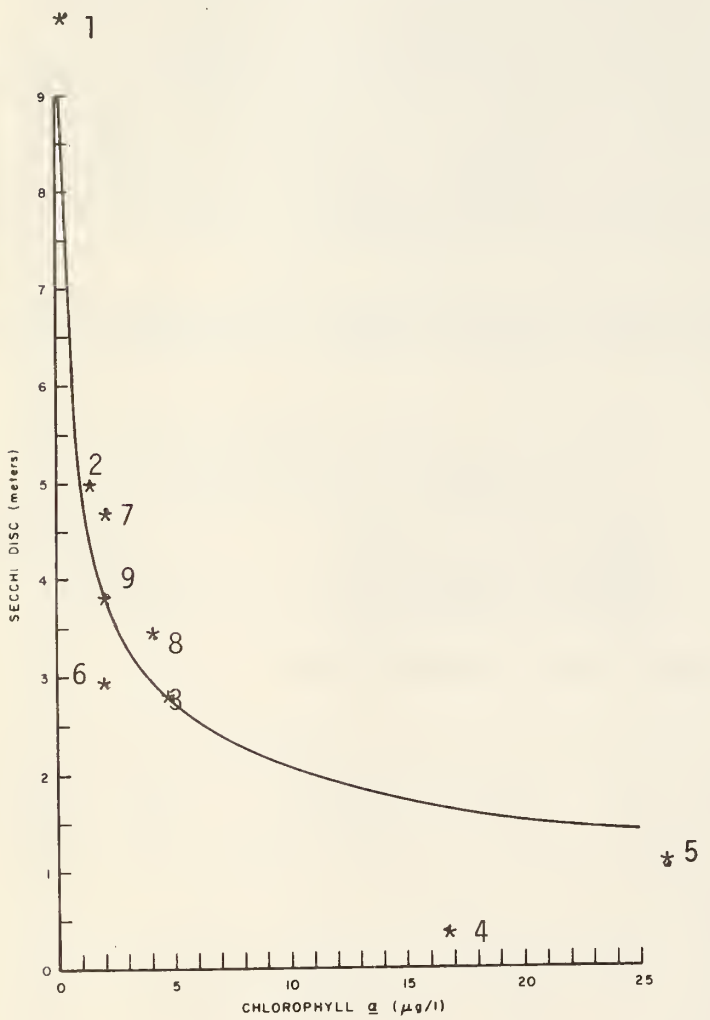
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (Joe B.) S.D.	Chloro. a	Stn. - Outlet Bay S.D.	Chloro. a	Stn.- Inlet Bay S.D.	Chloro. a	Stn.- North B. S.D.	Chloro. a
June 27	4.0	2.7	4.1	3.6	-	-	-	-
July 4	3.3	2.6	3.7	2.9	-	-	-	-
18	2.2	4.1	4.3	2.8	3.0	9.8	2.7	3.5
25	2.3	0.8	4.6	2.7	3.3	0.9	3.4	1.1
Aug. 2	2.4	2.5	4.5	2.1	2.9	3.0	4.3	1.6
22	2.8	2.5	5.6	1.6	-	-	4.9	1.5
29	3.2	2.5	5.3	2.2	-	-	-	-
Sept. 6	3.3	3.1	5.5	3.7	4.2	2.8	-	-
Mean	2.9	2.6	4.7	2.7	3.4	4.1	3.8	1.9

Based on the seasonal means for the two parameters measured, Paudash Lake would be considered moderately enriched, though distinct differences exist between the four bays sampled. The least enriched is Outlet Bay, followed by the North Bay, Inlet Bay and Joe Bay. The Lake is characterized by a moderate degree of transparency, and low to moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Paudash Lake in 1976

Year	Stn. - Joe Bay S.D.	Chloro. a	Stn. - Outlet B S.D.	Chloro. a	Stn. - Inlet B S.D.	Chloro. a	Stn. North B. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	2.9	2.6	4.7	2.7	3.4	4.1	3.8	1.9
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. PAUDASH LAKE - JOE BAY - 1976
7. PAUDASH LAKE - OUTLET BAY - 1976
8. PAUDASH LAKE - INLET BAY - 1976
9. PAUDASH LAKE - NORTH BAY - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Paudash Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph illustrates the variations in water quality between the four stations sampled on Paudash Lake.

The lake lies between Kashagawigamog Lake, a relatively unenriched lake, and Gravenhurst Bay in trophic status. Continuation of this program is required, to determine any long-term trends in water quality.

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Ontario

Ministry of the Environment

PENNINSULA LAKE
Twp. of Lake of Bays, District
Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (Wolf B.) S.D.	Chloro. a	Stn. Deerhurst B. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 21	4.3	2.0	4.3	1.8				
28	4.8	2.4	4.8	2.6				
July 5	4.2	2.5	4.5	2.6				
18	3.2	2.7	3.2	3.2				
25	3.1	2.3	3.2	2.4				
Aug. 3	3.8	1.9	3.8	2.1				
10	4.7	4.0	4.2	1.6				
17	5.0	1.8	4.8	1.7				
Sept. 2	5.0	2.4	4.7	5.0				
12	4.2	3.9	4.5	7.1				
Oct. 11	4.5	2.4	5.3	3.0				
Mean	4.3	2.6	4.3	3.0				

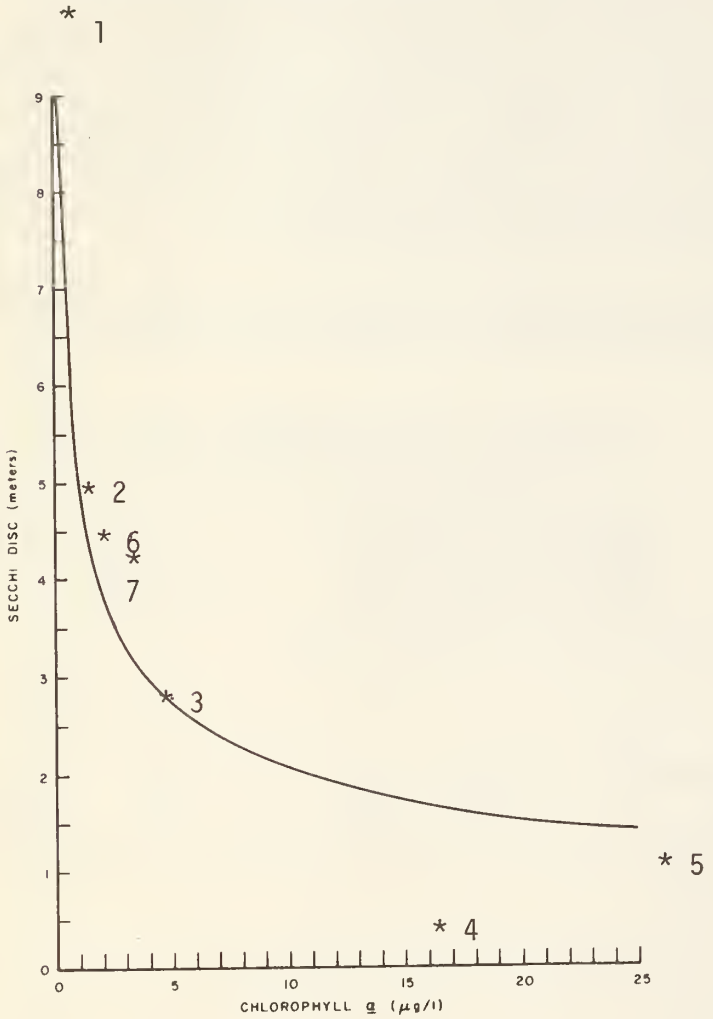
No trend is apparent in the variations experienced by either the Secchi disc or chlorophyll a concentrations during the sampling period. Based on the seasonal menas for the two parameters measured Penninsula Lake would be considered moderately enriched, characterized by a relatively high degree of water transparency, and moderate algal densities. The water quality at the two stations sampled, was basically the same.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Penninsula Lake in 1973, 1975 and 1976

Year	Stn.: S.D.	Lake Average Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
* 1973	4.5	1.9						
1974								
** 1975	4.0	1.1						
1976	4.3	2.8						
"								
"								

* MOE data

** based on 1 sampling only



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Penninsula Lake - 1973
7. PENNINSULA LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Penninsula Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

RIL LAKE

Twp. of Lake of Bays, District Municipality of Muskoka

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

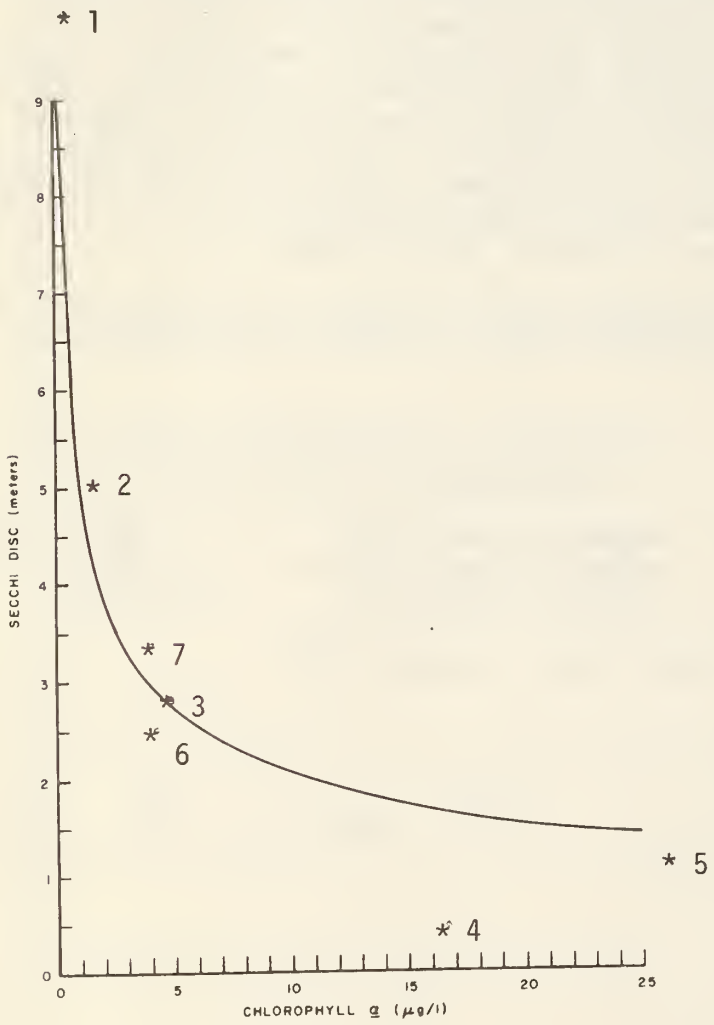
Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 1	3.0	3.4						
7	3.5	3.1						
14	3.3	4.1						
21	2.7	4.2						
28	3.3	4.6						
Aug. 4	3.2	6.3						
11	3.3	4.6						
18	4.0	2.9						
24	4.7	-						
31	3.0	2.4						
Sept. 8	2.5	3.1						
Mean	3.3	3.9						

No trend is apparent in the variations experienced by either the Secchi disc readings or chlorophyll a concentrations during the sampling period. Based on the season means for the two parameters measured, Ril Lake would be considered moderately enriched, characterized by a moderate degree of transparency, and moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Ril Lake in 1972 and 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
* 1972	2.5	4.3						
1973								
1974								
1975								
1976	3.3	3.9						
"								
"								

* MOE data



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Ril Lake - 1972
7. RIL LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Ril Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The 1976 data indicates an improvement in lake quality since 1972. Continuation of this program is required to determine if this trend will continue, or the improvement is due to natural fluctuation.

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Ontario

SALERNO LAKE
Snowdon & Glamorgan Twp., Provisional
County of Haliburton

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

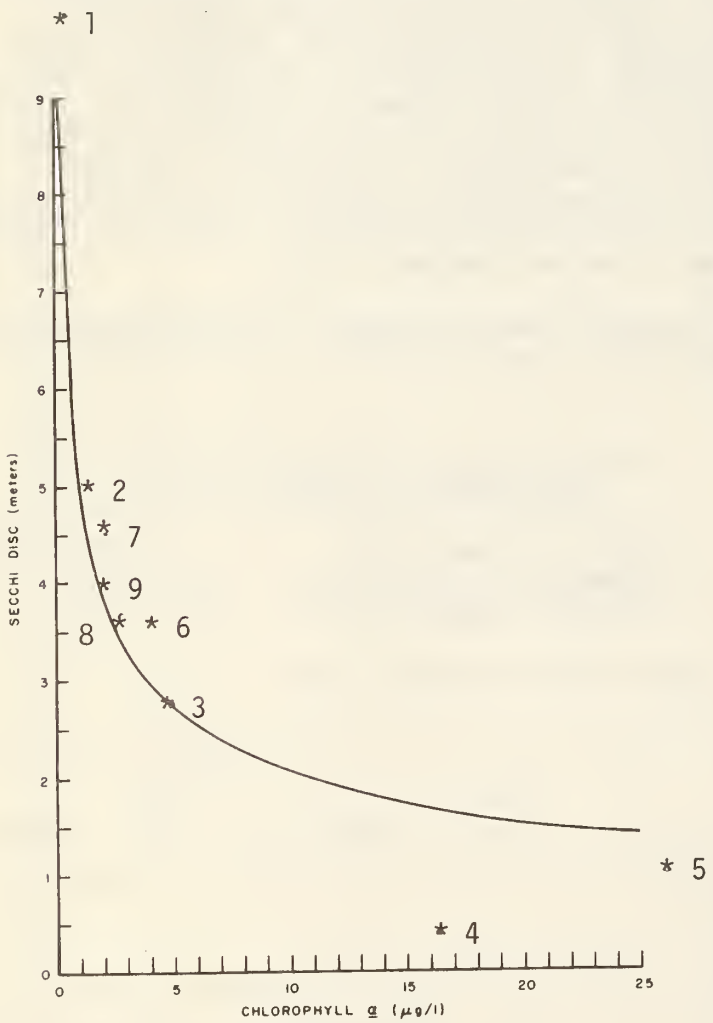
Date	Stn. - Main (1) S.D.	Chloro. a	Stn. - 2 S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	2.4	5.7	2.9	4.8				
30	2.0	2.8	2.4	1.6				
June 6	3.1	3.3	4.0	2.2				
20	2.4	3.9	4.7	2.3				
27	2.3	1.4	4.3	1.9				
July 4	3.8	2.0	3.9	3.0				
11	-	3.4	-	2.7				
18	2.9	6.6	3.8	2.3				
Aug. 2	3.8	2.4	5.0	2.4				
8	3.2	2.3	3.2	1.9				
15	4.8	1.7	5.3	1.7				
22	4.7	2.9	4.0	1.2				
29	3.5	2.5	3.5	2.0				
Sept.6	5.3	2.0	5.0	2.0				
26	3.5	2.6	3.1	3.9				
Oct. 3	4.4	2.5	3.5	5.2				
11	4.7	3.0	3.2	3.0				
Mean	3.6	3.0	3.9	2.6				

The variations in the Secchi disc readings and chlorophyll a concentrations were considerable during the sampling period, but no trends are apparent. Based on the seasonal means for the two parameters measured, Salerno Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate algal densities. There was no difference in quality between the two stations, based on these parameters.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Salerno Lake in 1973, 1975 and 1976

Year	Stn. - 1 S.D.	Stn. - 1 Chloro. a	Stn. - 2 S.D.	Stn. - 2 Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
1971								
1972								
* 1973	6.0	1.9						
1974								
1975	3.6	4.0	4.5	2.2				
1976	3.6	3.0	3.9	2.6				
	"							
	"							

* mean of 3 stations



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Salerno Lake - Stn. 1 - 1975
7. Salerno Lake - Stn. 2 - 1975
8. SALERNO LAKE - STN. 1 - 1976
9. SALERNO LAKE - STN. 2 - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Salerno Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variation in Secchi disc readings and chlorophyll a concentrations during the last two years are attributable partly to natural annual fluctuation and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

SCHUFELT LAKE

Twp. of Lake of Bays, District Municipality of Muskoka

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

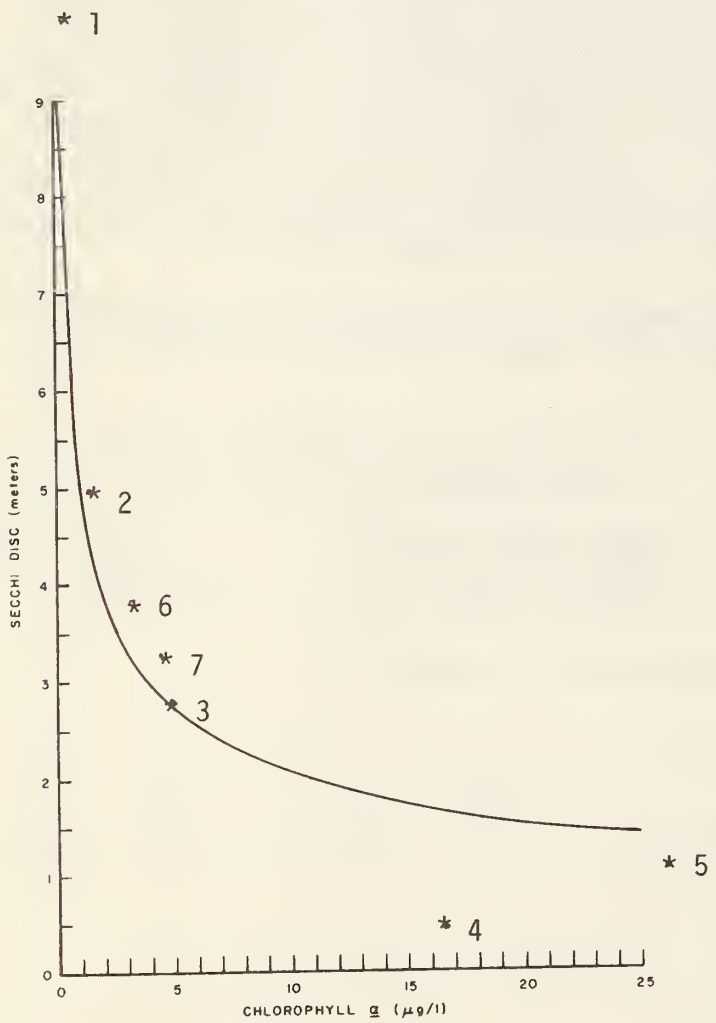
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 20	3.5	3.7						
uly 4	3.5	8.7						
11	2.5	7.0						
18	3.0	4.9						
25	3.5	4.7						
ug. 2	3.0	2.7						
22	4.0	1.6						
ean	3.3	4.8						

he Secchi disc readings remained relatively constant during the sampling period, whereas he chlorophyll a concentrations porgressively declined. Based on the seasonal means or the two parameters measured, Schufelt Lake would be considered moderately enriched, haracterized by a moderate degree of water transparency and moderately high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Schufelt Lake in 1975 and 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975	3.7	3.2						
1976	3.3	4.8						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Schufelt Lake - 1975
7. SCHUFELT LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Schufelt Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

SIX MILE LAKE
Twp. of Georgian Bay, District
Municipality of Muskoka

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (1) S.D.	Chloro. a	Stn. - 2 S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
July 18	5.9	2.4	6.1	3.4				

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Six Mile Lake

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976								
"								
"								

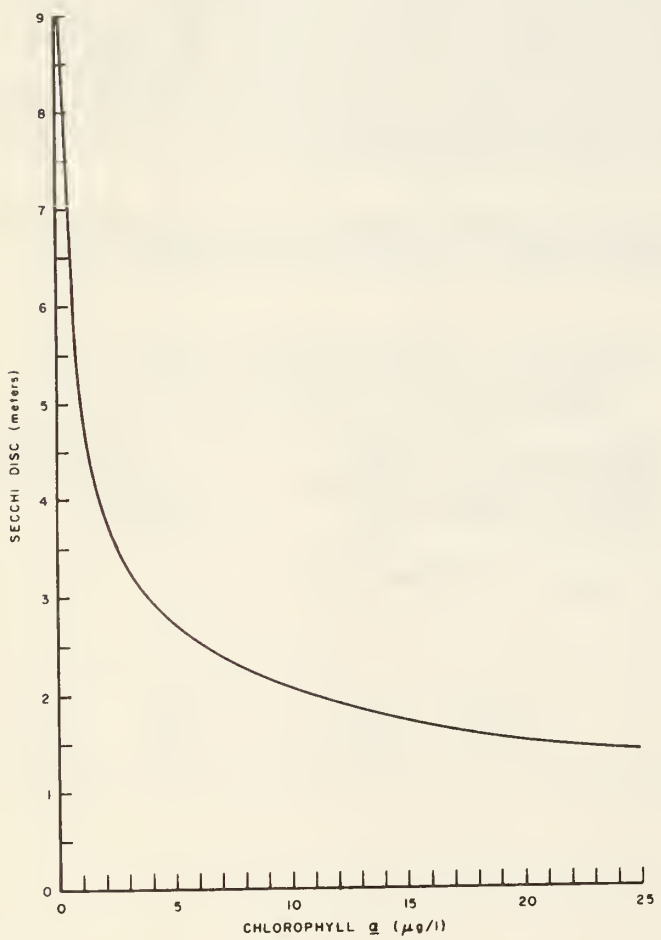

Figure 1: The relationship between Secchi disc and chlorophyll a for Six Mile Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continuation of this program with more frequent sampling is required, before the trophic status of Six Mile Lake can be determined.

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Ontario

SOYERS LAKE
Minden Twp., Provisional County of Haliburton

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

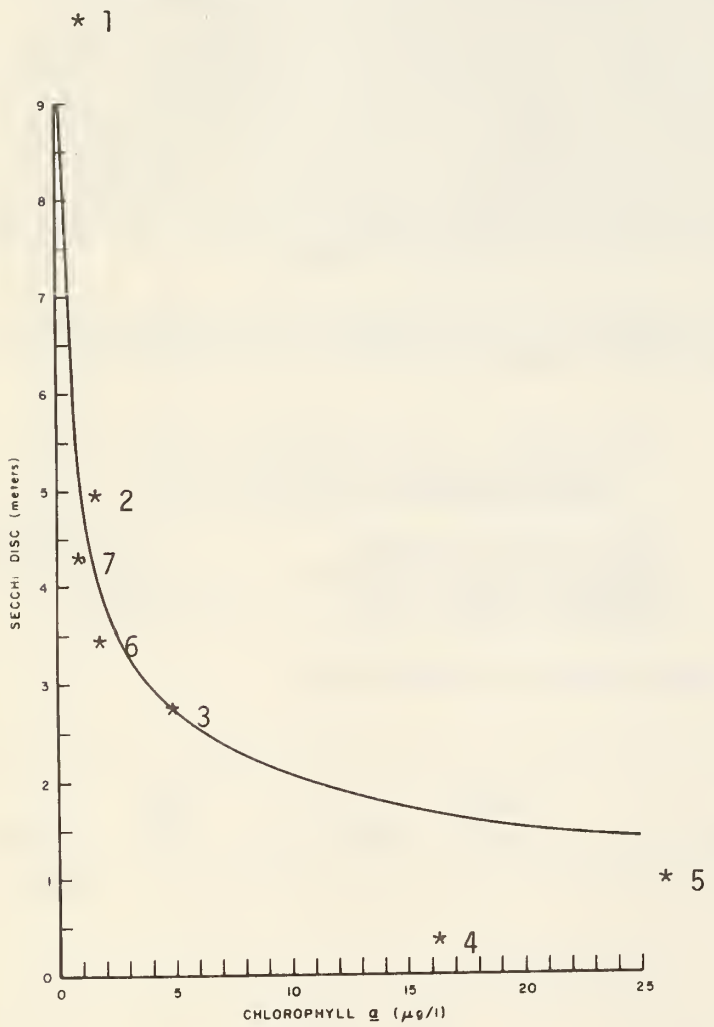
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	3.7	0.4						
June 13	4.3	0.6						
July 4	4.0	1.3						
18	3.8	1.6						
25	4.3	2.0						
Aug. 2	4.1	2.3						
15	4.3	1.9						
22	4.6	2.1						
Sept. 6	4.4	2.1						
Oct. 11	5.5	3.0						
Mean	4.3	1.7						

No trends are apparent in the variations in Secchi disc readings or chlorophll a concentrations. The maximum chlorophyll a concentration occurred in October as did the greatest Secchi disc reading. Based on the seasonal means for the two parameters measured Soyers Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Soyers Lake from 1973 to 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973	3.8	1.7						
1974	4.4	0.9						
1975	3.5	2.1						
1976	4.3	1.7						



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Soyers Lake - 1975
7. SOYERS LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Soyers Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuation and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

STORMY LAKE

Glamorgan Twp., Provisional County of Haliburton

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

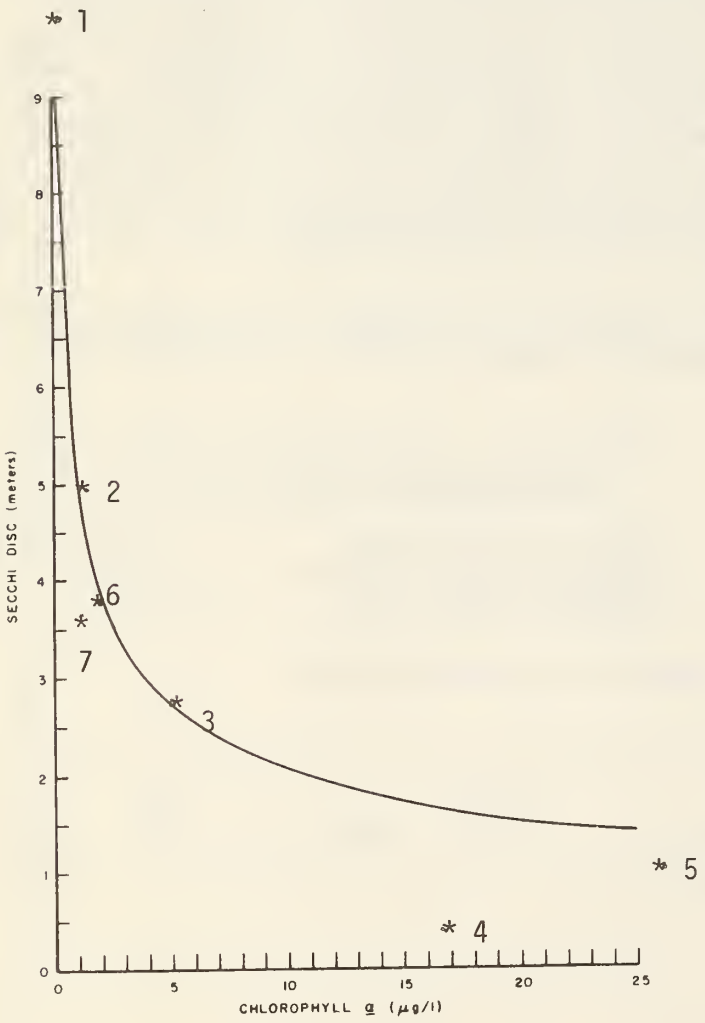
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
June 12	4.3	1.4						
July 4	3.1	1.1						
Aug. 1	3.7	1.7						
8	3.1	1.7						
22	4.3	1.7						
Mean	3.7	1.5						

Both the Secchi disc readings and chlorophyll a concentrations remained relatively uniform during the sampling period. Based on seasonal means for the two parameters measured, Stormy Lake would be considered moderately enriched, characterized by a moderate degree of enrichment and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Stormy Lake from 1972 to 1976

Year	Stn. S.D.	Main Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	2.8	1.9						
1973	3.7	1.6						
1974	2.4	1.4						
1975	3.8	2.2						
1976	3.7	1.5						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Stormy Lake - 1975
7. STORMY LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Stormy Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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Ontario

TOCK LAKE
McClintock Twp., Provisional County
Of Haliburton

Ministry of the
Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

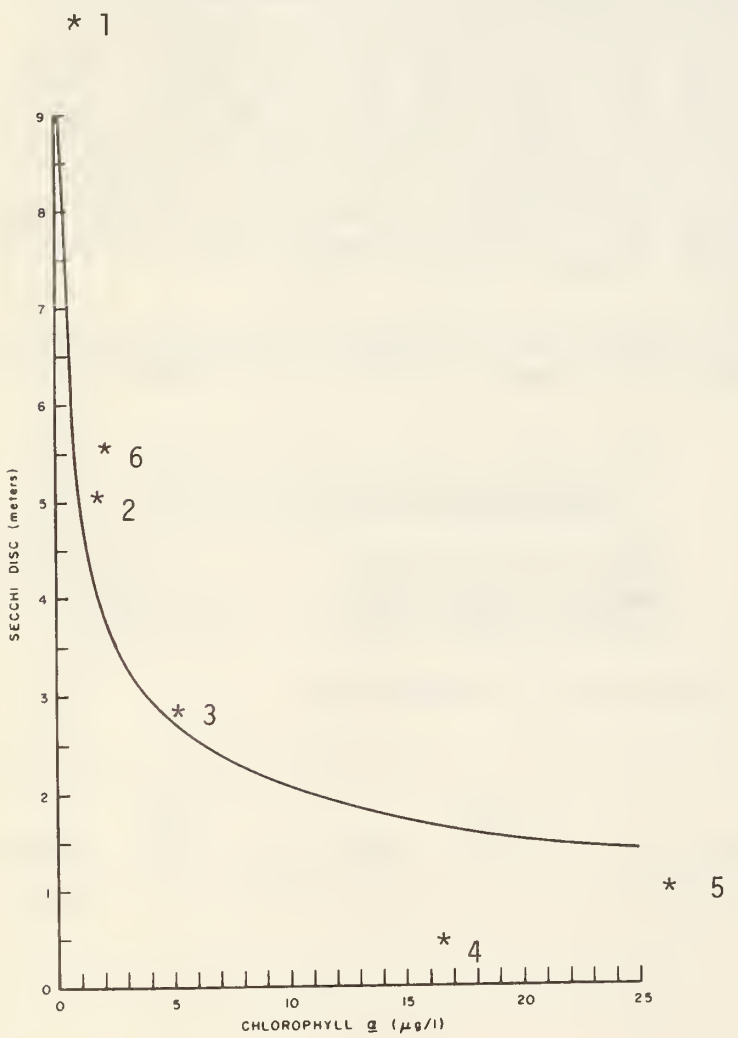
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 9	5.0	0.8						
24	5.3	1.3						
June 13	6.0	8.5						
July 25	5.8	1.2						
Aug. 9	5.3	2.3						
Sept. 5	-	1.8						
19	6.0	2.4						
Mean	5.6	2.6						

The Secchi disc readings remained relatively constant during the sampling period, whereas the chlorophyll a concentrations varied from 0.8 to 8.5 ug/l. It is possible, that the high chlorophyll a concentration on June 13 was due to the presence of extraneous material in the sample; and is not an accurate reflection of algal density on that date. Based on the seasonal means for the two parameters measured, Tock Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Tock Lake in 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	5.6	2.6						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. TOCK LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Tock Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of Tock Lake is similar to that of Kashagawigamog Lake, and is far removed from sugh highly enriched water bodies as Moira Lake and Lake Scugog. Continuation of this program is required to determine any long term trends in lake quality.

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Ontario

TROOPER LAKE

Glamorgan Twp., Provisional County of Haliburton

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

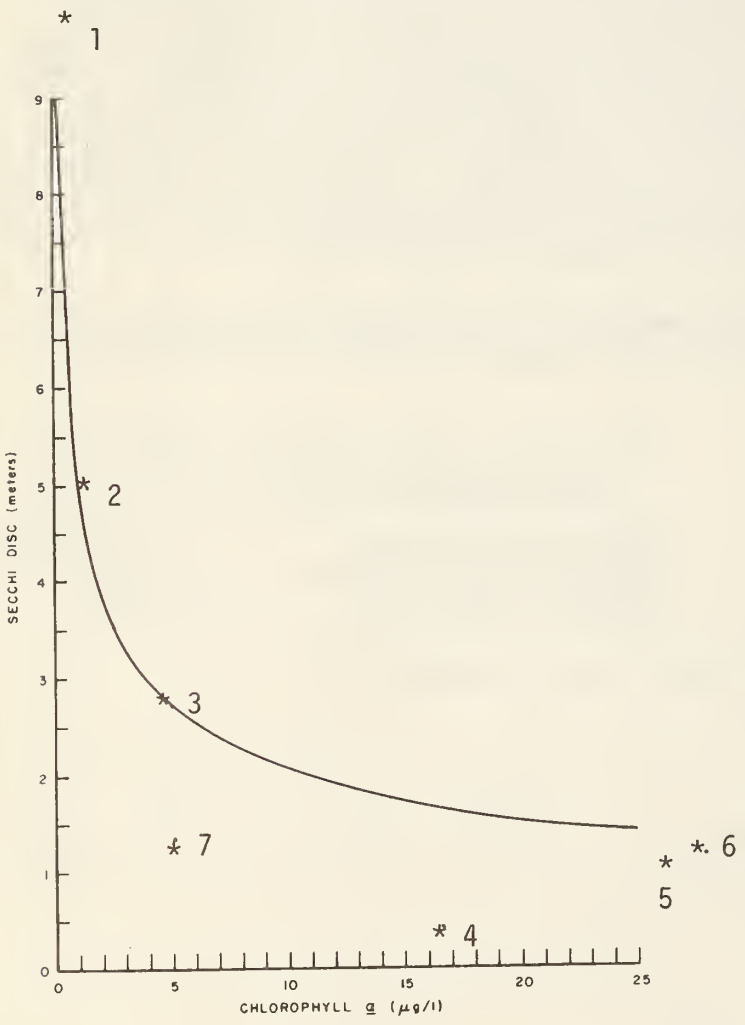
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	1.3	12.0						
June 13	1.3	1.6						
27	1.3	4.9						
July 11	1.3	6.1						
25	1.3	5.6						
Aug. 3	1.5	2.0						
8	1.5	6.2						
22	1.2	3.2						
Sept. 6	1.3	4.0						
Mean	1.3	5.1						

The Secchi disc readings remained relatively constant during the sampling period whereas the chlorophyll a concentrations varied from 1.6 to 12.0 ug/l. The shallowness of Trooper Lake, allows continual movement of nutrients between the water and sediments, thus the lake is capable of supporting high algal densities. Based on the seasonal means for the two parameters measured, Trooper Lake would be considered enriched, characterized by a poor degree of transparency and high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Trooper Lake in 1975 and 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975	1.2	28.4						
1976	1.3	5.1						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Trooper Lake - 1975
7. TROOPER LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Trooper Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the two years of sampling, the Secchi disc readings have remained constant whereas the chlorophyll a concentrations varied greatly. Continued participation in this program is required, to determine any long term trends in lake quality.

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Ontario

TURTLE LAKE

Town of Gravenhurst, District Municipality of Muskoka

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

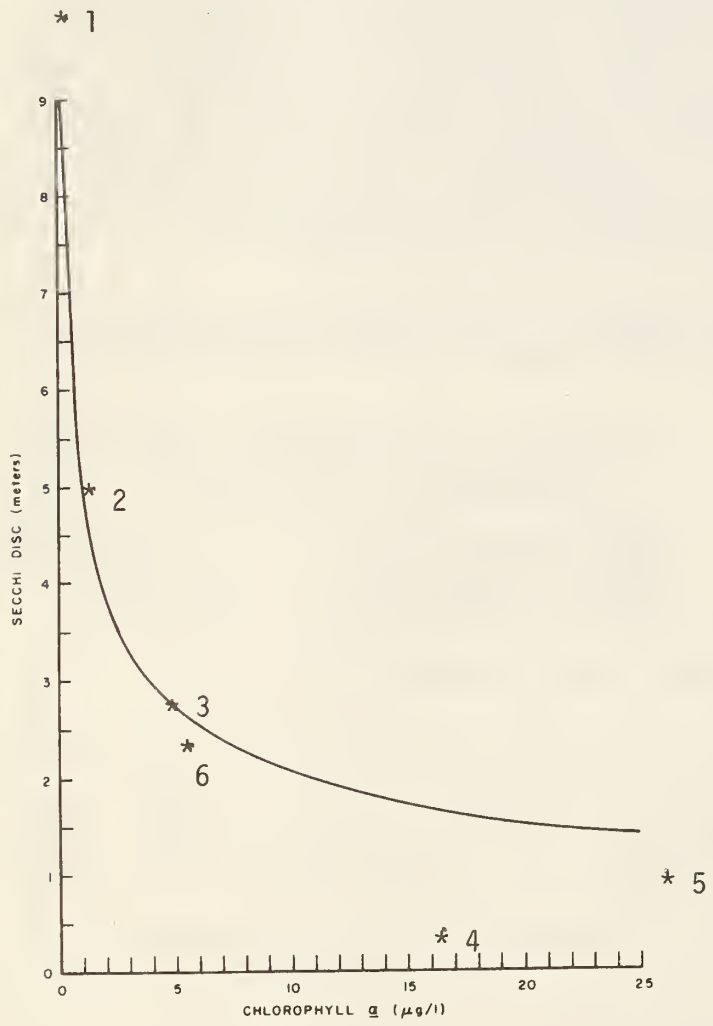
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
June 12	3.5	2.7						
20	2.3	11.0						
27	2.8	6.1						
July 4	2.3	6.8						
18	2.0	4.9						
25	2.0	3.0						
Aug. 8	2.3	3.8						
29	2.0	9.5						
Sept. 6	2.5	6.4						
12	2.5	3.1						
Mean	2.4	5.7						

The Secchi disc readings remained relatively constant during the sample period, whereas the chlorophyll a concentrations varied from 2.7 to 11.0 ug/l. No trend is apparent in the chlorophyll a variations. Based on seasonal means for the two parameters measured, Turtle Lake would be considered enriched, characterized by a low degree of water transparency and high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Turtle Lake in 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976	2.4	5.7						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. TURTLE LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Turtle Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of Turtle Lake is comparable to Gravenhurst Bay, though it is somewhat more enriched. Continued participation in this program is required to determine any long term trends in lake quality.

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Ontario

TWELVE MILE LAKE

Minden Twp., Provisional County of Haliburton

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

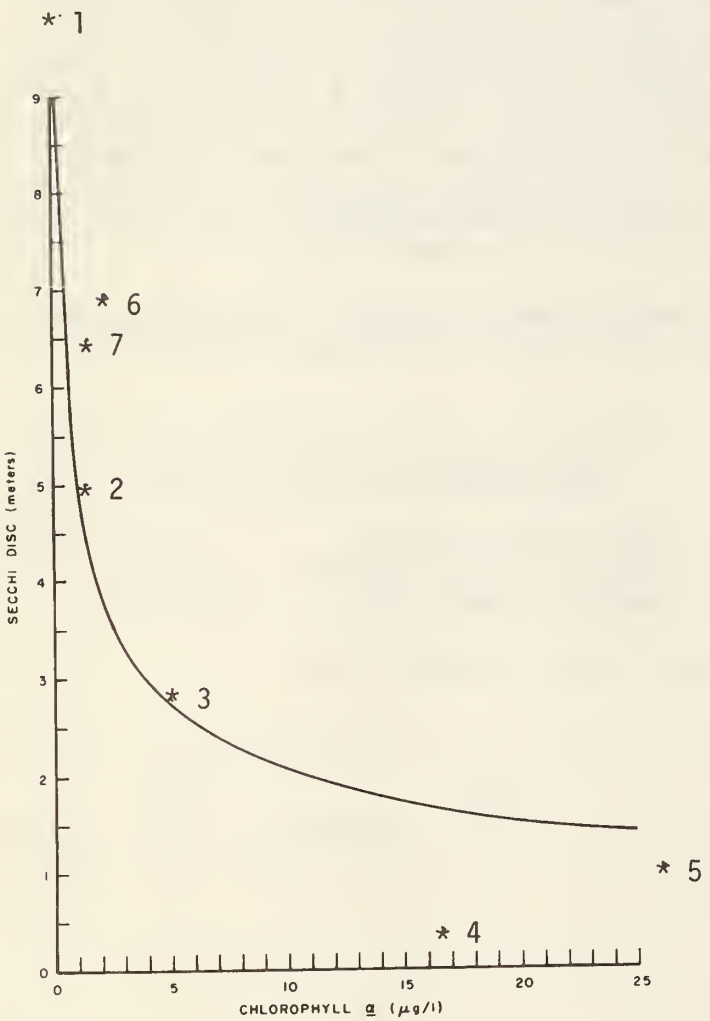
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
May 24	6.9	1.4						
June 20	6.4	1.3						
July 4	6.7	1.9						
11	6.9	1.4						
25	6.7	1.1						
Aug. 2	6.7	1.6						
15	6.6	2.0						
22	6.6	2.2						
29	6.4	2.5						
Sept. 6	6.1	1.7						
Oct. 11	5.5	1.8						
Mean	6.5	1.7						

The variations in the Secchi disc readings and chlorophyll a concentrations were minimal during the sampling period. Based on seasonal means for the two parameters measured, Twelve Mile Lake would be considered unenriched characterized by a very high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Twelve Mile Lake from 1972 to 1976

Year	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972	5.8	1.2						
1973	6.3	1.8						
1974	6.0	1.0						
1975	6.9	2.5						
1976	6.5	1.7						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Twelve Mile Lake - 1975
7. TWELVE MILE LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Twelve Mile Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations and do not represent a change in water quality. Continuation of this program is required to establish any long-term trends in water quality.

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Ontario Ministry of the Environment, Central Region, 150 Ferrand Drive, Don Mills, Ontario, M3C 3C3 (416) 424-3000, Att'n. Mr. R. Shaw

Ontario

WALKER'S LAKE
Twp. of Lake of Bays, District
Municipality of Muskoka

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

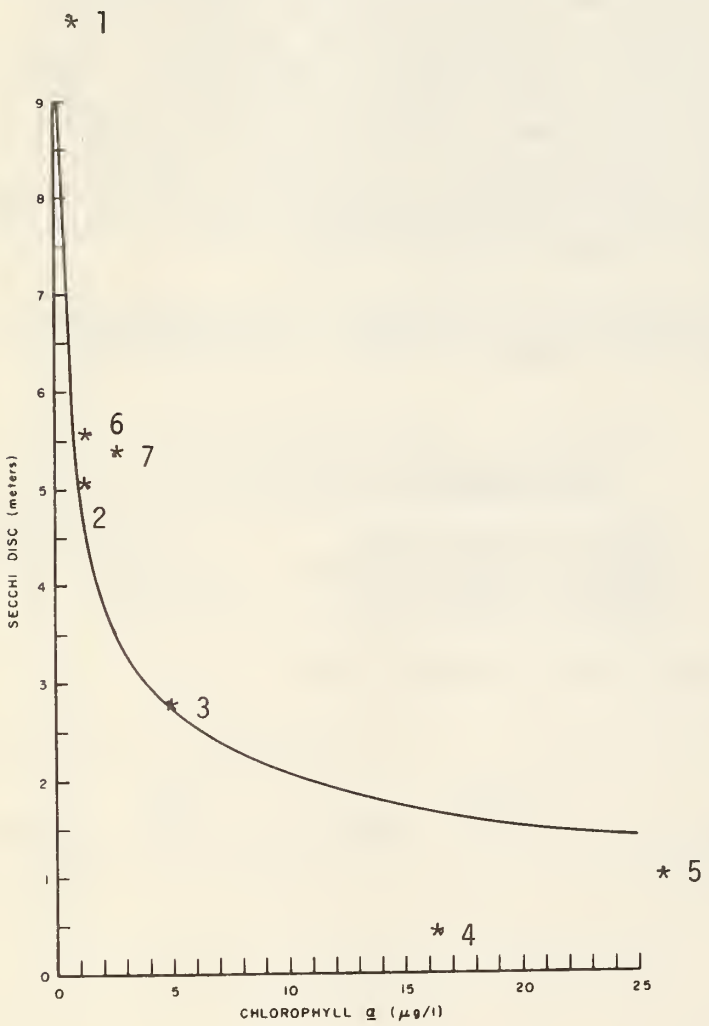
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 20	5.3	3.3						
July 11	5.0	4.2						
25	5.5	2.6						
Aug. 8	5.3	1.3						
22	5.5	1.7						
Sept. 12	5.8	2.5						
Mean	5.4	2.6						

The Secchi disc readings remained relatively constant during the sampling period, whereas the chlorophyll a concentrations varied from 1.3 to 4.2 ug/l. Based on the seasonal means for the two parameters measured, Walker's Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Walker's Lake from 1974 to 1976

Year	Stn. Main S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974	6.4	1.6						
1975	5.6	1.6						
1976	5.4	2.6						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Walker's Lake - 1975
7. WALKER'S LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Walker's Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the three years the program has been conducted on Walker's Lake, there has been a progressive decrease in the lake's transparency, and an increase in algal densities. This program should be continued to determine if this trend reflects an alteration in lake quality, or if the variations are due to natural fluctuations.

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Ontario

WOLF LAKE

Anstruther Twp., Peterborough County

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main (West) S.D.	Chloro. a	Stn. - East End S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
June 13	4.5	2.3	4.5	1.7				

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mea
collected from

m) and chlorophyll a (ug/l) data

Year	Stn. S.D.	Chloro. a	tn. D.	Chloro. a	Stn. S.D.	Chloro. a
1971						
1972						
1973						
1974						
1975						
1976						
"						
"						

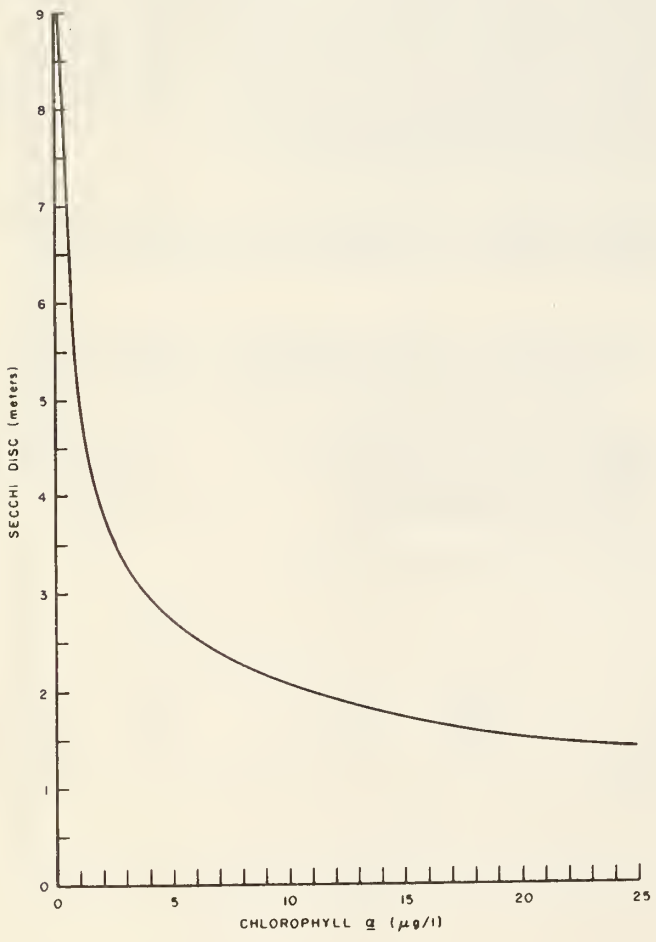

Figure 1: The relationship between Secchi disc and chlorophyll a for and a number of other well-known recreational lakes in the province. All data are seasonal means.

The frequency of sampling must be increased, if sufficient data is to be obtained to determine the trophic status of Wolf Lake.

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Ontario

WOOD LAKE

Anstruther Twp., Peterborough County

Ministry of the Environment

135 St. Clair Avenue West
Suite 100
Toronto Ontario
M4V 1P5

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1976

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication entitled "Information of General Interest to Cottagers", which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per liter - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

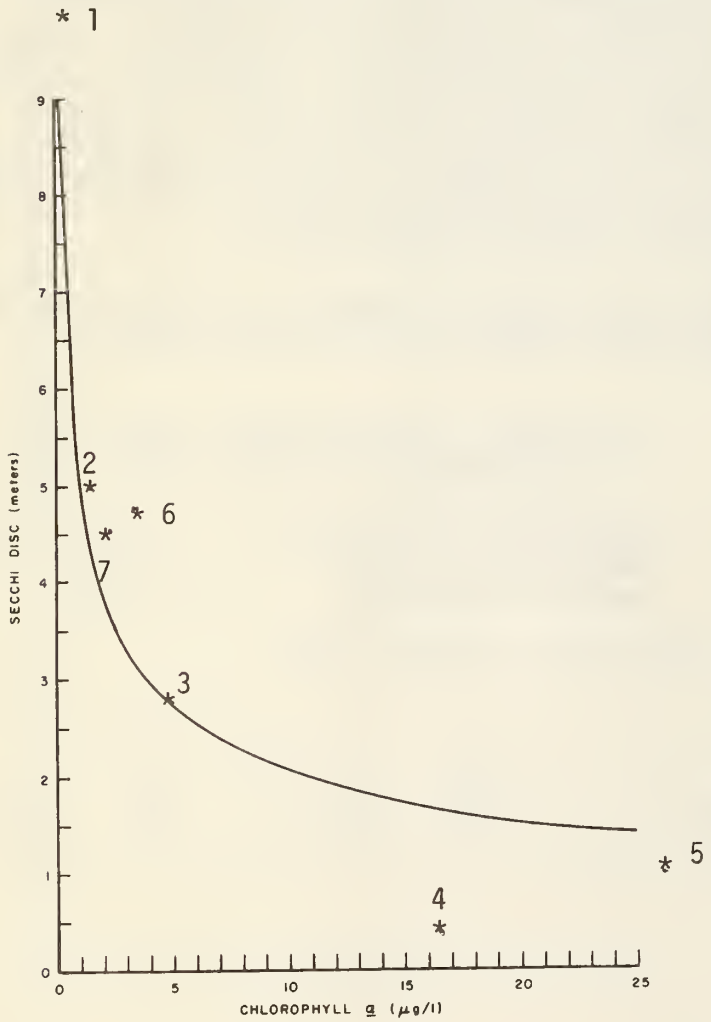
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from

Date	Stn. - Main S.D.	Stn. - Main Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a	Stn. S.D.	Stn. Chloro. a
July 19	3.5	4.7						
Aug. 9	4.5	1.8						
16	4.0	1.7						
25	6.5	2.0						
Mean	4.6	2.6						

Since samples were collected on only four occasions in 1976 it is difficult to obtain even a reasonably accurate estimate of the trophic status of Wood Lake. Based on the available data, Wood Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Wood Lake from 1974 to 1976

Year	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a	Stn. S.D.	Chloro. a
1971								
1972								
1973								
1974	4.5	1.3						
1975	4.7	2.9						
1976	4.6	2.6						
"								
"								



1. Kennisis Lake - 1975
2. Kashagawigamog Lake - 1975
3. Gravenhurst Bay - 1974
4. Lake Scugog - 1972
5. Moira Lake - 1972
6. Wood Lake - 1975
7. WOOD LAKE - 1976

Figure 1: The relationship between Secchi disc and chlorophyll a for Wood Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable partly to natural annual fluctuations, and do not appear to represent a change in water quality. Continuation of this program is required to establish any long-term trends in lake quality.

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